

HORTI SELBYANI

HISTORY OF ORCHIDS IN CENTRAL AMERICA PART II: THE NEW REPUBLICS—1821–1870

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INTRODUCTION

Part I of this series, *History of Orchids in Central America Part I: From Prehispanic Times to The Independence Of The New Republics* appeared in Harvard Papers in Botany 10(2): 183–226, 2005.

TIMES OF CHANGE

After independence in 1821, the Central American republics joined the ephemeral Mexican empire of Agustín de Iturbide. The Central American Federation was constituted in 1825, under the name of United Provinces of the Center of America (FIGURE 1). Mexico became a federal republic in 1824, under the name of the United Mexican States. In those confusing times, the spirit of Enlightenment remained present for a short period of time. “On October 5, 1825 [José Cecilio del Valle] addressed a letter to the Secretary of the Supreme Government proposing an expedition, financed by European and Guatemalan investors. He even proposed that Alexander von Humboldt should come back to America, suggesting he start with the Central American regions. The German never came back, but a large number of botanists started exploring the area during the nineteenth and twentieth centuries” (Maldonado Polo 1996).

In Mexico, Juan Martínez de Lexarza (1785–1824), Pablo de La Llave (1773–1833) and Vicente Cervantes (1755–1829) continued the work started by Martín Sessé (1751–1808) and José Mariano Mocino (1757–1820), of whose expedition Cervantes had been a member. A word about Cervantes: such was his prestige in Mexico, where he held the chair of Botany, that the Mexican government, although he was a Spaniard, maintained him in his position after independence (Teixidó 2005). He directed the Chair and the Botanical Garden until his death, and was also in charge of the pharmacy of the Hospital of San Andrés, where he set up an excellent chemical laboratory. Cervantes was a brilliant investigator of Mexican flora and described many new species. He kept a close sci-

entific relationship with Antonio José Cavanilles, the great Spanish botanist, to whom he sent large amounts of material. He also had connections with Alexander von Humboldt and Aimé Bonpland, whose friendship he had made during their stay in Mexico. Lexarza’s work, *Novorum Vegetabilium Descriptiones*, was published in 1824–1825. La Llave and Cervantes together described one hundred species as new to science. The *Orchidianum Opusculum*, which appeared in the second fascicle of 1825, includes the descriptions of 50 new species of the Orchidaceae distributed in 20 genera. Lexarza proposed here a new classification of orchids, based on an analysis of their seeds and pollen (FIGURE 2). “Lexarza gave promise of making an accomplished botanist, but he attempted too much and was cut off young. Several of his orchids have not been identified in consequence of their descriptions being imperfect” (Hemsley 1884). It may be argued that La Llave and Lexarza should not be included in this story, since the Mexican state of Michoacán, where most of the plants described in the *Novorum Vegetabilium Descriptiones* were collected, lies outside of our limits. However, there are evidences that he, or La Llave (or both) collected plants from other families in the area of Veracruz, many of which can also be found in other regions of Central America. The following species, among others, were dedicated to Lexarza: *Cypripedium lexarzae* Scheidw.; *Macroclinium lexarzanum* (Hágs. & González) Dodson; *Maxillaria lexarzana* Soto Arenas & Cabrera; and *Notylia lexarzana* Hágs. & González. On the other hand, La Llave is remembered in *Epidendrum llavei* Steud. and *Schiedeella llaveana* Schltr. Both honored their friend Cervantes with *Rhynchostele cervantesii* (La Llave & Lex.) Soto Arenas & Salazar. The works of Lexarza, De La Llave and Cervantes are the last examples of “Spanish botany” in Central America. It does not surprise us, therefore, that many of their collections went the same way as those of the great Spanish expeditions of the preceding century and ended up lost in the hands of Spanish bureaucracy.



FIGURE 1. Coat of Arms of the United Provinces of Central America. (From Bateman (1837–1843)).

In 1836, Joaquín Velásquez, assigned to the Mexican Legation in Rome, brought with him a small collection of dried plants and seeds collected in Guatemala, which formed the basis of the *Florula Guatimalensis* (1840) of Antonio Bertoloni (1775–1869), although no species of Orchidaceae are mentioned in this work. Bertoloni, the most important Italian botanist of his time, was also interested in exotic plants that he received from his friends. His collections of samples are kept in the archive of the Botanic Garden of Bologna.

Those were times of change. The Central American Federation was dissolved in 1838. While the newly born Central American nations took their first steps in republican life, other powers, particularly Great Britain and the United States, sharpened their weapons to fill the void left by Spain. Central American society, overwhelmed with political, economic and social problems of great magnitude, could not find time or resources for the development of the natural sciences. In fact, with the notable exception of the trio formed by Martínez de Lexarza, de La

NOVORUM VEGETABILIIUM DESCRIPTIONES.

IN LUCEM PRODEUNT

OPERA

PAULLI DE LA LLAVE

ET IOANNIS LEXARZA

REIP. MEXIC. CIV.

FASCICULUS I.

QUADRAGINTA DESCRIPTIONES COMPLECTENS

QUARUM TREDECIM

TOTIDEM GENERA NOVA

EXHIBENT.

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*Méxici: Apud Martinum Riveram.*

ANN. DOM. M.DCCC.XXIV.

## ORCHIDIANUM OPUSCULUM.

RINEMOSPERMAE (\*)

SEU

ORCHIDEAE. (*Gynand Diandr. Linn.*)

Character universalis ex Decandolle. [*Sin. Flor. Gall. p. 168.*]

Perigonium petaloideum, ovario adhaerens, sexpartitum, laciniis irregularibus, 3-exterioribus, 3-interioribus, 5-superioribus florem quasi vere constituentibus, inferiore (*labello*) forma semper directione saepius diversa; antherae 1-2, uni-ad-quadriloculares, sessiles super stylum nunc ad apicem, nunc ad latus sitae: pollen in massam agglutinatum: stylus columnaris simplex; stigma orbiculare viscosum positione varium; capsula unilocularis trivalvis tricarinata inter nervos lateraliter dehiscens; semina numerosa scobiformia receptaculis tribus mediis valvis adnatis imposita; corculum ad basin perispermii carnosum.

### PARS I.

RINEMOSPERMAE HYPOGEAE.

SECTIO I. *Monandrae*.—Anthera loculis discretis, gynostemo longitudinaliter adnatis. Pollinis massae granulosa. — Herbae terrestres radicibus nunc fasciculatis, nunc tuberosis, tuberibus ovatis aut palmatis; foliis integris amplexicaulibus; floribus bracteatis spicatis.

(\*) *Semina scobiformia.*

FIGURE 2. Front covers of the work by La Llave & Lexarza.

Llave and Cervantes, we can not talk about a national science in Central America until the last quarter of the nineteenth century. The scientific discovery of the natural richness of the region was left in the hands of foreign explorers, collectors and travelers, who would soon start arriving at its shores.

### ORCHIDOMANIA

*“... it was neither to provide us with food or raiment, nor to protect us from disease or cold, that tropical forests were made to teem with an almost endless variety of the tribe [Orchidaceae]: either, therefore, in the cheerless spirit of atheism, we must suppose them to have been created in vain, or we must conclude that their office was something other and higher than to minister to the mere animal necessities of our nature. No; it was to yield us a pleasure of an intellectual kind, and so to win our affections from more hurtful things, that these most worthless of plants were clothed in unrivalled charms;—it was to provide a rich banquet in the temple of Flora, which, while it yielded the utmost enjoyment to her most constant votaries, might, at the same time, draw round her innocent table those who were more rarely numbered among her guests; an entertainment, in short, which might attract the man of pleasure by its splendour, the virtuoso by its rarity, and the man of science by its novelty and extraordinary character. It is, we are convinced, on this principle alone that we can attempt to understand the ‘Orchido-Mania,’ which now pervades all (and especially the upper) classes, to such a marvellous extent. Not contented with the exertions of our foreign connexions, we send men expressly to all the points of the compass, to swell the number of the species in cultivation; and in this zeal for their introduction, the amateur, the nurseryman, and the public establishment, all vie with each other. The nobility, the clergy, those engaged in the learned professions or in the pursuits of commerce, seem alike unable to resist the influence of the prevailing passion; nay, if we may trust a paragraph in a morning paper, it has even extended to Windsor Castle itself.”* These passionate words by James Bateman, in the introduction to his *Orchidaceae of Mexico and Guatemala* (1837–1843), are perhaps the best description of the enthusiasm for orchids which had developed in England. *“Exotic orchids arrived in Europe at a propitious moment, an epoch pulsing with an appetite and admiration for exotic flora. They represented the fascination and loveliness of far-off lands that were fast coming closer as colonialists built up the great empires of the nineteenth century. It was in such*



FIGURE 3. Sir Joseph Banks (1743–1820). (Portrait by Benjamin West, courtesy of the Hunt Institute for Botanical Documentation).

*conquered territories that orchids were uprooted or stripped from trees and rocks, beginning their long journey to hothouses and herbaria”* (Berliocchi 2000). The Royal Horticultural Society was founded in 1804 by Sir Joseph Banks (1743–1820) (FIGURE 3) and a few years later started sending out collectors to the tropical regions. In 1812, Joachim Conrad Loddiges (1738–1821) “was . . . becoming fairly successful in cultivating the ‘Epidendrums’ or ‘air plants,’ as nearly all the epiphytic species were termed, and increasing numbers of their plants began appearing at the newly established horticultural exhibitions” (Reinikka 1995). The nurseries of Loddiges in Hackney, managed after his death by his son George (1784–1846), signaled the beginnings of commercial orchid cultivation, and many plants grown by Loddiges became the types for new species, described chiefly by Lindley in *Edwards’ Botanical Register*. Through its expanding collection of tropical plants, the Royal Horticultural Society contributed to the popularization of the orchids among the wealthy classes. The fashion of growing orchids as a hobby had its real beginning in 1833 when Wil-

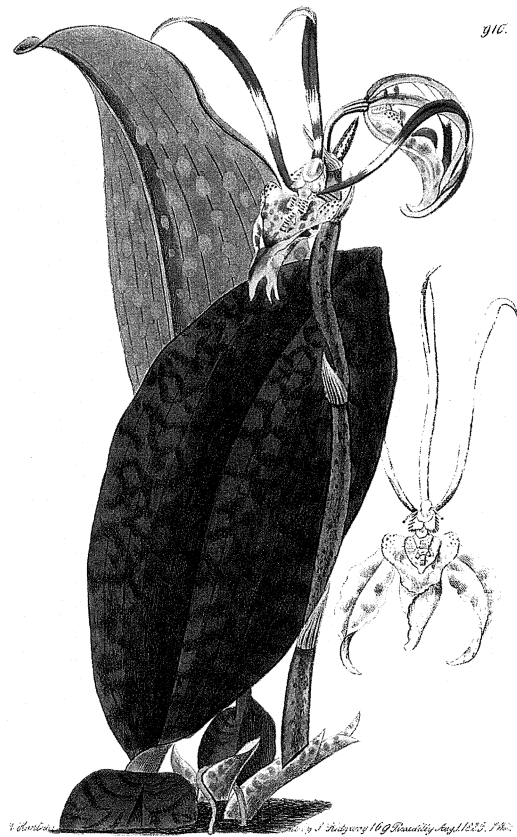


FIGURE 4. *Psychopsis papilio* (Lindl.) H.G.Jones. (As *Psychopsis papilio*, plate 1825. Edwards Botanical Register).

liam Spencer Cavendish, sixth Duke of Devonshire, discovered a plant of *Oncidium papilio* at one of the aforementioned exhibitions (FIGURE 4). Commercial nurseries found it highly profitable to supply the demand for new species, and several firms hired collectors to travel into the tropical areas of the world where they might locate new sources of species which had already become horticulturally popular, and to collect new species which might stimulate further interest and profit (Reinikka 1995). A new breed of adventurers started exploring the tropics in search of new species. The mania for possessing orchids raised the prices of all available plants. Great auctions were held in London and Liverpool where prices of one hundred pounds for a single plant were not unusual. "This is the epic phase in the orchid's history, written in the sweat and blood of a group of adventurers and explorers—the hunters of wild flowers that could sometimes prove every bit as dangerous as their animal counterparts" (Berliocchi 2000). The invention, in about 1829, of the "Wardian case"

by Dr. Nathaniel Bagshaw Ward unleashed a revolution in the mobility of commercially important plants. Dr. Ward was a physician with a passion for botany who accidentally discovered that fern spores were germinating and growing in a bit of soil inside of a bottle, thus protected from the contamination of the outside air. Ward communicated his discovery to George Loddiges, who had a carpenter build him closely-fitted glazed wooden cases. The first "Wardian cases" were shipped to Australia in 1833, filled with British ferns and grasses, and after a voyage of several months the plants were found still in good condition. (Gómez 2006). Wardian cases (FIGURE 5) soon became features of stylish drawings rooms in Western Europe and the United States. In the polluted air of Victorian cities, the fern craze and the craze for growing orchids that followed owed much of their impetus to these new Wardian cases.

By 1834, "orchidomania" had spread throughout England. Orchid cultivation also flourished elsewhere, however. "M. Pescatore, of St. Cloud, near Paris, was one of the first Europeans outside England to grow orchids as a leisure activity, having cultivated a large collection of plants for many years—as had Consul Schiller of Hamburg, Germany" (Reinikka 1995). According to Linden (1894), Jean-Pierre Pescatore (1793–1855) had "la plus riche collection d'Orchidées du continent," prompting Reichenbach to dedicate the genus *Pescatoria* to him. Many personalities from other countries were also instrumental in the discovery and introduction of new species. As orchid cultivation gained fashionability in England, horticulturists in Belgium were quick to recognize that trade in tropical and subtropical orchids could be profitable (Reinikka 1995). In 1838 the passion for

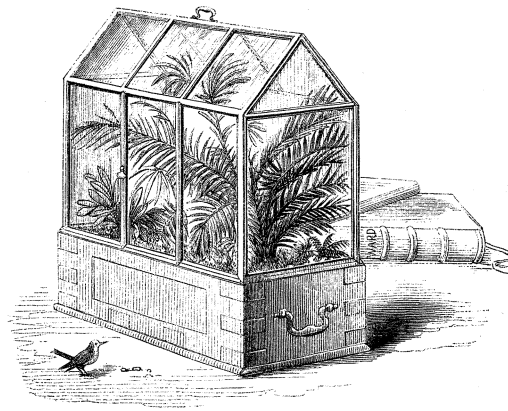


FIGURE 5. Wardian case. (From Ward (1852), courtesy of the Oakes Ames Orchid Herbarium, Harvard University).





FIGURE 6. The Plant Hunter. (Drawing by Paul Weber, 1941, from Hamer (1974), courtesy of Hedwig Hamer).

orchids had already extended to the United States, where John Wright Boott, of Boston, received a collection of plants sent to him from England by his brother James. Years later (ca. 1870), General John. F. Rathbone, of Albany, New York, wrote: "I was so delighted with the plant and flowers that I caught the Orchid fever, which I am happy to say is now prevailing to considerable extent in this country, and which I trust will become epidemic" (Reinikka 1995). Very soon, scientists and collectors would turn their eyes to the natural richness of Central America, thus beginning one of the most interesting periods in the history of the orchids of this region (FIGURE 6).

#### BRITANNIA RULES THE WAVES

Immediately after independence, the opening of commercial relations with the British created a sudden rise in business. Merchants from Belize, who had been trading illegally with Guatemala for the preceding twenty years, gained access and direct contacts to most of Central America. Britain had prevailed in the long-lasting naval war against Spain and France between 1790 and 1815, and had gained a monopoly on world naval trade. The United States, whose power increased day by day, responded quickly. In 1823 president Monroe formulated the "Monroe Doctrine," which stipulated that the American continent should not be subject to European colonization and that the United States would not tolerate European intervention. This doctrine can be summarized in the classic expression, "America for the Americans." It was the beginning of the fight among the powers on Central American soil, a fight that initially favored Great

Britain, and that only in the second half of the century would turn slowly in favor of the United States. Burdened by great economic problems, the first president of the Federal Republic of Central America, Manuel José de Arce, embarked on a bold revolutionary program. His tax reform eliminated unpopular Spanish levies, but left little revenue to cover the debt assumed from the colonial and imperial governments or to pay for expensive new projects. Arce turned to British capitalists to meet the financial crisis, but a loan from the London firm of Barclay, Herring & Richardson produced only a small amount of cash for the federation. The government repaid practically none of the loan, so it did not place an immediate burden on the federation's finances. However, the indebtedness remained for decades, providing repeated opportunities for British diplomats to negotiate favorable concessions for British economic interests. Exploration began on possible routes for the construction of an interoceanic canal in Central America. In the monumental work in which he describes his voyage to the New World from 1799 to 1804, Alexander von Humboldt names nine possible routes for an interoceanic canal and urges more complete scientific studies to decide which would be the most advantageous. Among these routes he assigns first place to that crossing Nicaragua, second and third places to routes across Atrato and Tehuantepec; and he assigns fourth place to the routes across Panama. A true comparative study between the various canal routes was not undertaken until many years later, but the Panama route was explored in 1827 by Lloyd and Falmare, in 1831 by Peacock, and again in 1844 by Garella. The route across Nicaragua was explored in 1837 by Baily, in 1848 by Oersted, and again in 1850 by Childs. In addition to these explorations, there were many projects which used information from prior surveys. Among these we can cite those of Prince Louis Napoleon in 1846, Squier in 1849, and Belly in 1858 (Montiel 1969). The decade which began in 1840 is the epoch of maximum English power in Central America. "Great Britain would try to confront the growing power of the United States and both nations would choose the border region between Costa Rica and Nicaragua as the ground where they would test their forces . . ." (Obregón Quesada 1993). It is an almost forgotten fact that in 1780 the British had already tried to control the San Juan River by sending an expedition commanded by the famous Lord Nelson, who sailed up the river and fought the Nicaraguans for several weeks.

In 1825, an Englishman by the name of John Hale signed a colonization agreement with the



FIGURE 7. Hugh Cuming (1791–1865). (From a lithograph by Hawkins, 1850. Courtesy of Rudolf Jenny).

Costa Rican government of Juan Mora Fernández. “The purpose of Hale was to form this colony with North American and British families . . . , and in the year 1826 he published a pamphlet in the city of New York, with the intention of making the new land known to the future settlers, a land overflowing with natural richness, which only awaited their arrival to become a paradise” (Fernández 1972).

The British naval expeditions to the coasts of Central America, the most important being those of *H.M.S. Blossom* (1827) and of *H.M.S. Sulphur* (1836), had undoubtedly scientific purposes, but their main goal was the geographical exploration and the construction of reliable maps preparing for future domination of the region and the control of the canal routes. “. . . [A] new period of activity set in, and continued almost unbroken for many years; but few of the numerous travelers had received a scientific training, hence the botanical results were by no means so satisfactory as they might have been. Indeed, the principal object of many of these travelers was the introduction of living plants into European gardens” (Hemsley 1884).

During one of his many voyages, Hugh Cuming (1791–1865) (FIGURE 7) landed in Central America in 1829. Around 1820, Cuming had arrived in Chile, where he established a sail making business. Interested in natural history, he sold his business and built a yacht designed with the sole purpose of collecting specimens for the British Museum and some botanical gardens. In 1831 he returned to England with a huge load

of animals, plants and shells for several museums and gardens. In about 1829, Cuming collected in Taboga and the Pearl Islands, and in Montijo Bay and the Chiriquí River (Panama). There is a set of his plants in the Kew Herbarium, but in many cases it is impossible to distinguish which were collected within our limits, since they are labeled “Panama et Colombia occidentalis.” At least four of Cuming’s specimens from Central America became the types for new species described by Lindley: *Aspasia epidendroides* (Cuming s.n.); *Oncidium* (= *Chelyorchis*) *ampliatum* (Cuming 1312) (FIGURE 8); *Dichaea panamensis* (Cuming 1292); and *Hexisea* (= *Scaphyglottis*) *bidentata* (Cuming s.n.). All four are still quite common in Central America. Cuming later collected in the Philippines, and although he was barely capable of signing his own name, his botanical instincts led him to the discovery of thirty-three new species of orchids. He was called, with good reason, “The Prince of Collectors.”

Hugh Low (1824–1905), a Scot by birth, established in 1820 one of the most prestigious English nurseries in Clapton, near London. The firm was one of the first to receive orchids from the Tropics. John Henchmann<sup>1</sup> (1814–1893), working for Low, collected in Mexico between 1835 and 1840, especially in the region of Ve-

<sup>1</sup> The name appears indiscriminately as Henchman or Henchmann.



FIGURE 8. *Oncidium ampliatum* Lindl. (From Reichenbachia).



FIGURE 9. *Maxillaria cucullata* Lindl. (Plate 3945. Curtis' Botanical Magazine).

racruz, and discovered an important number of new species of Orchidaceae, among them *Laelia barkeriana* Knowles & Westc. (Henchman s.n., Veracruz); *Oncidium luridum* var. *henchmannii* Knowles & Westc. (Henchmann s.n.); *Maxillaria henchmannii* Hook. (Henchmann s.n.); *Maxillaria cucullata* Lindl. ('a native of Equinoctial America, whence it is said to have been brought by Mr. Henchman') (FIGURE 9); and *Humboldtia octomerioides* (Lindl.) Kuntze (Henchmann s.n.).

George Ure Skinner (1804–1867), businessman, diplomat and amateur botanist is without doubt the most fascinating character in the history of the orchids in Central America during the first half of the nineteenth century. (FIGURE 10) "Son of a Scots clergyman, Skinner steadfastly refused to follow his father's vocation or in any way to consider an ecclesiastical or academic career. The call he heard was from the world of Mammon . . ." (Berliocchi, L. 2000) He arrived in Guatemala in 1831 and joined Carl R. Klee, Consul of the Hanseatic Towns, with whom he founded the firm of Klee, Skinner &

Co. He was actively engaged in the political and commercial life of the Central American Federation, pursuing not only his own interests but also serving as an active agent for the interests of Great Britain. A skilled diplomat, he enjoyed the sympathy of most of the Central American politicians of that time. This made him a valuable adviser to the omnipotent English Consul Frederick Chatfield and turned Skinner into one of the principal ideologists of English policy in Central America, which acknowledged territorial gains in payment for the unpaid portion of the loan granted to the government of Manuel José de Arce years before. Beginning with his arrival in Guatemala, Skinner showed interest in its natural beauties, collecting birds and insects which he sent to England at the urging of his friend, the ornithologist and writer John Gould (Rigby 2000). Being introduced to James Bateman, who convinced him to collect orchids, was a turning point in Skinner's life. "In his first letters Bateman showed Skinner by means of descriptions and a few rough sketches what he was looking for; Skinner quickly learned all he needed to know how to get started" (Hamilton 1990). Bateman wrote years later: "My letter [to Skin-

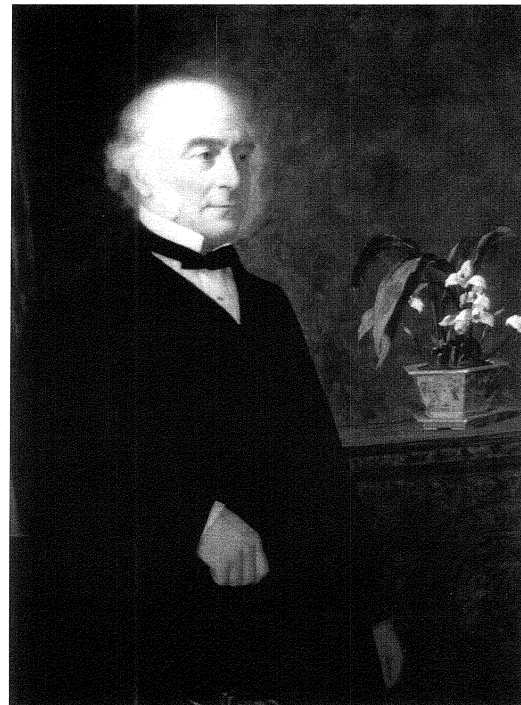


FIGURE 10. George U. Skinner (1804–1867). (Portrait by George Washington Bronlow (ca. 1860), courtesy of the Hunt Institute for Botanical Documentation).

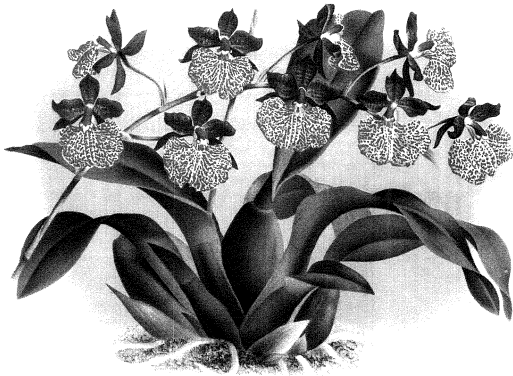


FIGURE 11. *Odontoglossum uroskinneri* Lindl. (Plate CtwentiethII. Lindenia).

ner], dated March 17, 1834, reached him in due course, and as he never tired of telling me, the day of its arrival was as if it were a new birthday, for it gave a fresh interest to his life, which never left him to his very latest hour" (Bateman 1867). During more than 30 years, Skinner traveled constantly between Guatemala and England, dedicating more and more time to orchids. Because of his knowledge of the land and his excellent relations, he was a great help to other naturalists who explored Central America in his time, such as Hartweg, Friedrichsthal, von Warscewicz and Salvin. All important botanists of his time, from Lindley to Bateman and Bentham, were his friends, but important above all was his friendship with Sir William Jackson Hooker, a Scot like him who was later (1841) to be appointed as Director of the Royal Botanic Gardens at Kew. The almost constant political unrest in Guatemala frequently interrupted his activities. In 1839 he wrote to Hooker: "Such has been the state of this Country that my occupations legitimate have been stopped and had it not been for my thirst after Orchidaceae long ere I [would have] cut my throat" (Hamilton 1990). Although he collected chiefly in Guatemala, he obtained plants from all Central American countries.<sup>2</sup> Within his collections, almost a hundred new species were found. Some of the types collected by Skinner are *Barkeria skinneri* (Batem. ex Lindl.) A.Rich. & Gal.; *Catasetum integerimum* Hook.; *Clowesia russelliana* (Hook.) Dodson; *Coelia guatemalensis* Rchb.f., *Cynoches egertonianum* Batem.; *Deiregyne pyramidalis* (Lindl.) Burns-Bal.; *Epidendrum papillosum* Batem.; *Epidendrum stamfordianum* Ba-

tem.; *Guarianthe aurantiaca* (Batem. ex Lindl.) Dressler & W.E.Higgins; *Guarianthe skinneri* (Batem.) Dressler & W.E.Higgins; *Lycaste skinneri* (Batem. ex Lindl.) Lindl.; *Odontoglossum uroskinneri* Lindl. (FIGURE 11); *Oncidium skinneri* Lindl.; and *Xylobium elongatum* (Lindl.) Hemsl. Two of Skinner's discoveries were later declared as National Flowers: the *alba* variety of *Lycaste skinneri* is today the National Flower of Guatemala, while *Cattleya* (= *Guarianthe*) *skinneri* is the National Flower of Costa Rica. At the end of his life Skinner pursued, in an almost obsessive way, the collection of the famous *Cattleya dowiana* Batem. (FIGURE 12), which had been discovered years before by Warscewicz. With this purpose he hired a Guatemalan collector by the name of Enrique Arce and sent a young German botanist, Carl Kramer, to Central America. In one of Skinner's last letters, dated October 17th, 1866, in England, to Captain John M. Dow in Panama (to whom the species was dedicated), he writes: "By this steamer we have sent you a fine young fellow, a Mr. Carl Kramer, who is to go on at once to Costa Rica. If Arce is still in Panama when this reaches, he will go on with him, but Arce has been so dilatory about going after the birds and plants we want, that others have been beating us in our manor. *Cattleya dowiana* surpasses all the *Cattleyas* yet known . . . we must get a batch of it . . . And I hope you will for *Dowiana's* sake



FIGURE 12. *Cattleya dowiana* Batem. (Plate 5618. Curtis' Botanical Magazine).

<sup>2</sup> An example is the protologue of *Odontoglossum rubescens* Lindl.: 'Imported from Nicaragua by G.U. Skinner.'



FIGURE 13. George U. Skinner's signature (from one of his many letters to Hooker).

take care that his [Kramer's] collections reach us well, . . . for my credit is at stake. I never was beat . . . Dowiana for ever" (Hamilton 1993). About the naming of *Cattleya dowiana* we follow Veitch: "It was the wish of Warszewicz, the original discoverer, that his plant should bear the name Lawrenceana, in compliment to Mrs. Lawrence of Ealing, a generous patroness of Horticulture, but as his specimens miscarried, this fact was not made known until after Bateman had named it in compliment to Captain J.M. Dow of the American Packet Service, to whose kindness orchidists and men of science owe so much" (Veitch 1906). In December 1866, Skinner arrived in Panama, on his way to Guatemala, where he pretended to wrap up his business for he wanted to retire in England. He crossed the Isthmus in a railcar and still had time to collect his last orchids. In those days he wrote to Veitch: "I have sent home a box, with orders that it may be sent to you at once. You will find an *Ionopsis* which may be good, *Pleurothallis*, and some very curious *Epidendra*" (Hamilton 1993). A few days later, on January 9th, 1867, he died in Colón, Panama, a victim of yellow fever. He was buried at Mount Hope Cemetery, in Colón and his tombstone bears the following inscription: "S.I.M. GEORGII URE SKINNER F.L.S. E. SCOTIA ORTI QUEM INTER OCEANOS CUM TRIGINTANOVIES TRAN-SIISSET GUATEMALAM ASCENSURAM DEUS MISERECORS MUNDANO EX MARI PORTUM IN OPTATUM VOCAVIT DIE JANUARIII NONE A.D. MDCCCLXVII R.I.P. BEATI MUNDO CORDE CUONIAM IPSI DEUM VIDEBRUNT. DEO GRATIAS."<sup>3</sup> (FIGURE 13).

James Bateman (1811–1897) was undoubtedly the greatest beneficiary from Skinner's collections (FIGURE 14). "After several years of enjoying the orchidaceous bounty sent to him by

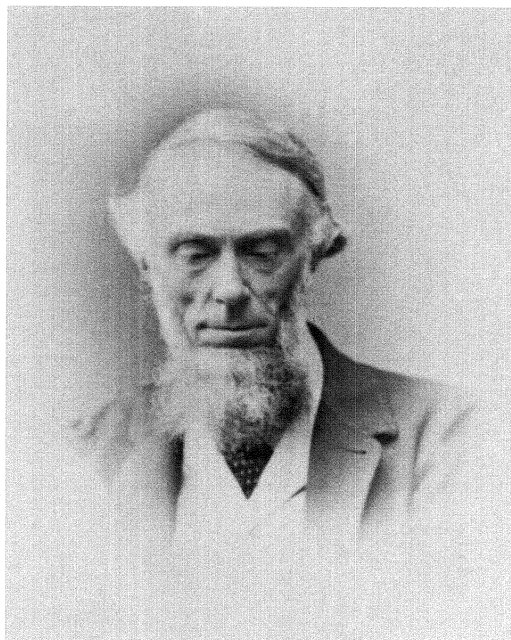


FIGURE 14. James Bateman (1811–1897). (Courtesy of Rudolf Jenny).

Skinner, Bateman conceived the brilliant idea of sharing his good fortune with the rest of the world . . . by publishing a book with the largest illustrations of orchids ever seen . . . The title would be *The Orchidaceae of Mexico and Guatemala*" (Hamilton 1990) (FIGURE 15). "It is this . . . eccentric but exquisite study—in so gargantuan a format as to make no more than 125 copies feasible in the first print run—that more than justifies Bateman's place in the pantheon of orchid pioneers" (Berliocchi 2000)<sup>4</sup> (FIGURE 16). Skinner was the key element in the creation of Bateman's book, because all the wealth and enthusiasm of Bateman would have been of little use without Skinner's plants. Over half of the species illustrated by Bateman in his monumental work had their origin in collections by Skinner. "... [I]n fact, the inclusion of Guatemala in the work must have been due entirely to the collections of Skinner" (Williams 1972). Their friendship was strong, and in 1860 Skinner took Bateman's eldest son back to Guatemala, to see the source of his discoveries. (Herman 1976). Bateman was deeply religious and strongly believed that hybridization by man was interfering with the work of God (Rigby 2000). In gratitude for his great contributions to botany, Bateman

<sup>3</sup> "In loving memory of George Ure Skinner, F.L.S., born in Scotland, who when he had crossed the oceans thirty-nine times and was about to go to Guatemala, was summoned by a merciful God from the worldly sea to a pleasant haven on the 9th of January 1867. R.I.P. Blessed are the pure in the heart for they shall see God. Thanks be to God."—Translation by Mary Raymond Daniell, great-granddaughter of Skinner.

<sup>4</sup> The book measured 27 × 15 inches and weighed almost 40 pounds.

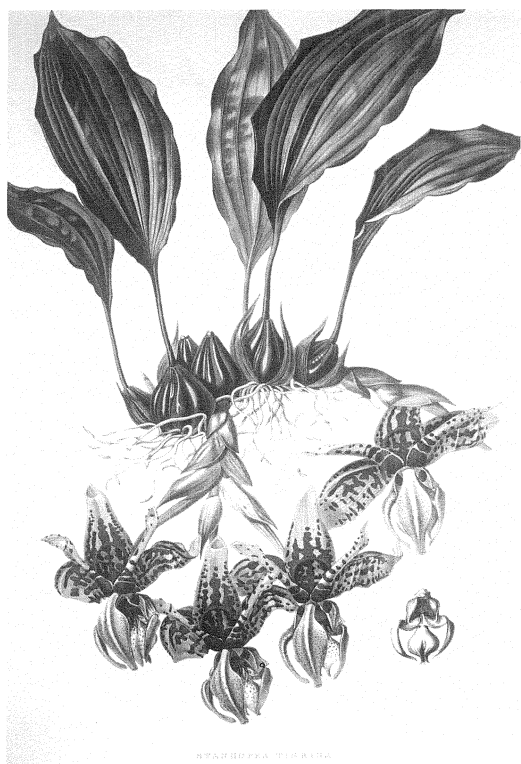


FIGURE 15. *Stanhopea tigrina* Batem., one of the beautiful plates of Bateman's book.

proposed Skinner as a member of the prestigious Linnean Society in June 1866. The recommendation was accepted shortly before Skinner's death, on December 6 of the same year.

Karl Theodor Hartweg (1812–1871), German by birth, was one of the first collectors hired by the Royal Horticultural Society to explore the lands of Mexico and Central America (FIGURE 17). He traveled to Mexico in 1836. "The principal object of his journey was to collect and transmit living specimens or seeds of ornamental plants and trees; but he also made large collections of dried plants, the numerous novelties of which were published by the late Mr. George Bentham [who was the President of the Royal Society] between 1839 and 1842 under the title *Plantae Hartwegianae*" (Hemsley 1884). According to Cox (1955), he had been told in his instructions most clearly to confine himself as much as possible to mountainous districts, where plants would be found that would not necessarily require stove treatment. In Mexico he met Sartorius, in whose estate (El Mirador) he made important collections. At the beginning of 1839 he received instructions to travel to Guatemala and, on Lindley's recommendation, made

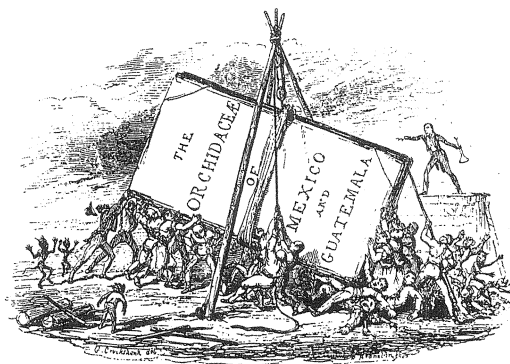


FIGURE 16. Vignette by George Cruikshank. (From Bateman (1837–1843)).

contact with Skinner. The political situation in Guatemala was dangerous, and Hartweg wrote to Skinner asking if it was convenient to undertake the journey. "In a few days the post passes through here for Guatemala, when I shall write to Mr. Skinner and ask his opinion on the subject, as well as the present state of the country" (Hartweg in a letter to the Royal Horticultural Society, March 19, 1839). In a letter to Hooker in April of the same year, Skinner relates his answer to Hartweg: "He asks if he should come on. I write him, 'By all means', & have given him letters of introduction to every town on the route & moreover sent him dried specimens of Orchidaceae that will bring him on in spite of himself." Hartweg arrived in Guatemala, where he met Skinner, who joined him on many of his collecting trips. "An intrepid and indefatigable plant hunter, Hartweg possessed both great good



FIGURE 17. Karl Theodor Hartweg (1812–1871). (Courtesy of Rudolf Jenny).



sense and intuition . . . earning fame as the collector of the greatest number of orchid species in the first half of the nineteenth century" (Bertolucci 2000). Among the numerous new species of orchids discovered by Hartweg during his five years of exploration in Mexico and Central America one can mention *Arpophyllum alpinum* Hartweg ex Lindl. (Hartweg s.n., Mexico); *Arpophyllum giganteum* Lindl. (Hartweg s.n., Guatemala); *Barkeria spectabilis* Batem. ex Lindl. (Hartweg s.n., Guatemala); *Coelia macrostachya* Lindl. (Hartweg s.n., Guatemala); *Cranichis apiculata* Lindl. (Hartweg s.n., Guatemala); *Cypripedium molle* Lindl. (Hartweg s.n., México); *Rhyncholaelia glauca* (Lindl.) Schltr. (Hartweg s.n., Mexico); *Rhynchostele pygmaea* (Lindl.) Rehb.f. (Hartweg 568, Guatemala); *Sarcoglottis cerina* (Lindl.) P. N. Don (Hartweg s.n., Guatemala); *Sarcoglottis rosulata* (Lindl.) P. N. Don (Hartweg s.n., Guatemala); and *Schiedella trilineata* (Lindl.) Burns-Bal. (Hartweg s.n., Guatemala). However, his collections from Guatemala seem scanty (only 107 items). Bentham's account of Hartweg's collections in this country consists of only 24 pages (Williams 1972). This small harvest leads to the speculation that part of Hartweg's material could have been lost. In Guatemala's rich flora, 107 specimens could easily have been collected in three or four days. On January 1 of 1841 he departed for South America and Jamaica, returning finally in 1843 to England. The Royal Horticultural Society was so satisfied with his work that he was sent on a second mission to Mexico and California. During this final journey he travelled together with Heller. Tired of traveling, he returned to Germany in 1848, where he was named Director of the Gardens of the Great Duke of Baden, in Schwetzingen. There he died in 1871.

From the moment of the dissolution of the Federal Republic of Central America in 1838, the situation changed dramatically. On one side, Nicaragua became conscious of her lack of control over the Caribbean coast; and on the other, English policy, now opposed to the unity of Central America, became more and more aggressive. Great Britain finally granted the Mosquitoes a protectorate in 1845, confirming what had been affirmed some years before, in 1838, when it was said that this region was in fact English territory. Not contented with this, on January 1, 1841, the superintendent of Belize, Alexander MacDonald, who rivaled the chargé d'affaires and eventual General Consul of Great Britain in Central America, Frederick Chatfield, in aggressiveness and illegitimate acts, attacked and seized San Juan del Norte. The Nicaraguans were witnesses, as was Costa Rica, to the fight

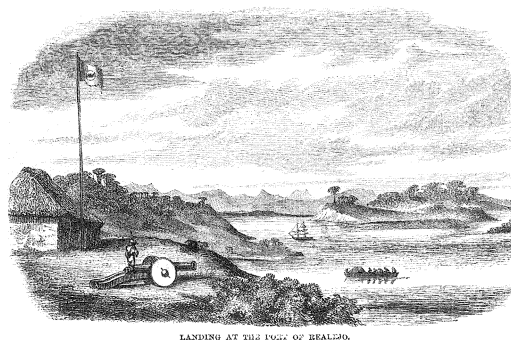


FIGURE 18. The Port of El Realejo. (From Wells, 1857).

among the powers in the region. Although by 1860 the British recognized that the Atlantic coast was Nicaraguan territory (Treaty of Managua), they did not withdraw from this area until the Altamirano-Harrison Treaty of 1905. The English exerted enormous pressure on Nicaragua, Honduras and El Salvador to secure rights on lands in the proximity of the future canal and on the sites which would help to defend it; they extended from Nicaragua to the mouth of the San Juan River and the port of San Juan del Norte; from Honduras, the Bay Islands in the Caribbean, and the Island of Tigre in the Gulf of Fonseca, and attempted to have economic control on all three (Obregón 1993).

The expedition of *H.M.S. Sulphur* (1836 to 1842) was the second of a series of voyages organized by the British Navy for the exploration, mainly for cartographic purposes, of the American Pacific coast and the islands of the South Pacific. It was commanded by Sir Edward Belcher (1799–1877) and had been preceded in 1827 by the *H.M.S. Blossom* under the command of Captain F. W. Beechey, who explored the Mexican Pacific coast (San Blas, Mazatlán and Acapulco, with Lay as naturalist). The botanists of the expedition, Andrew Sinclair (1796–1861), George Barclay and Richard B. Hinds (1812–1847), made important collections in Panama, Nicoya (Costa Rica), El Realejo (Nicaragua) (FIGURE 18) and the Gulf of Fonseca (Honduras), whose botanical descriptions were written by George Bentham. The collections of this expedition, for instance *Oncidium ampliatum* Lindl. (Barclay 2769, Costa Rica), are kept in London (BM). Botanical collections were not the priority for the expedition. The orders of the *Sulphur* (Belcher 1843), read, "Great collections of natural history cannot be expected, but . . . the medical officers must, undoubtedly, be anxious to contribute their part to the scientific character of the expedition" (Jørgensen 2003). However,



Hinds and Barclay found little to interest them: "Our visits to the Gulfs of Nicoya and Fonseca were not productive, indeed the sameness of an unbroken but dreary and profitless forest was nowhere more forcibly felt" (Hinds 1844). At least three specimens collected by the expedition of the *Sulphur* were determined as new species by Lindley: *Epidendrum chinense* (Lindl.) Ames (*Hinds s.n. Guatemala*); *Ornithocephalus bicornis* Lindl. (*Sinclair s.n., Panamá*); and *Scaphyglottis fasciculata* Hook. (*Sinclair s.n., Nicaragua*). Among the collections by Barclay we find *Catasetum viridiflavum* Hook. and *Maxillaria acutipetala* Hook. with the indication 'Central America, Pacific side.'

George Bentham (1800–1884) described the collections of Hartweg in Mexico and Guatemala in *Plantae Hartwegianae* (1839–1857) and also described many of the species of the journey around the world of *H.M.S. Sulphur* (FIGURE 19). In Kew, Bentham maintained a close relationship with Joseph Hooker, son of the director and also an excellent botanist, with whom he began the publication of *Genera Plantarum*, a joint effort to summarize all genera of flowering plants and gymnosperms. As an author, Bentham probably wrote more descriptions of plants new to science than any other person in his day.

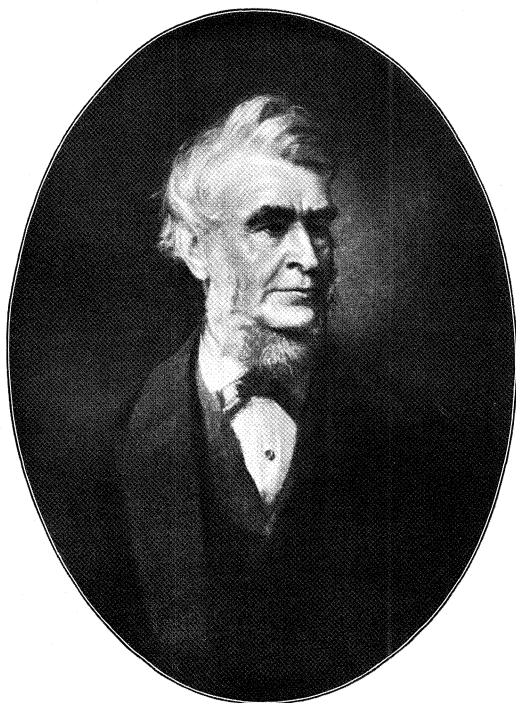


FIGURE 19. George Bentham (1800–1884). (Courtesy of Rudolf Jenny).



FIGURE 20. Carl Berthold Seemann (1825–1871). (From *Gardeners' Chron.*, 1871, courtesy of the Hunt Institute for Botanical Documentation).

The expedition of *H.M.S. Herald* (1844–1851) was the third of the already mentioned series of voyages undertaken by the British Navy to explore the coasts of the American Pacific. Carl Berthold Seemann (1825–1871), traveled in 1844 to Kew, to become a botanist (FIGURE 20). There he met W. J. Hooker, who recommended him to succeed Thomas Edmonston, who had lost his life accidentally in Ecuador. Thus Seemann participated in the expedition, which explored, among other regions, the isthmus of Panama and western Mexico. He arrived in Panama the 22nd of September, 1846 and joined the crew of the *Herald* in January of 1847. In May he was in Coiba, the largest island in the Central American Pacific and later Seemann's favorite place for the collection of plants. In December of the same year he explored the Darién and, in 1848, Chiriquí. He traveled through Mexico in 1848 and 1849. "When in 1848 Berthold Seemann pointed out that 'the isthmus of Panama, this part of New Granada which, like a bridge, connects the two

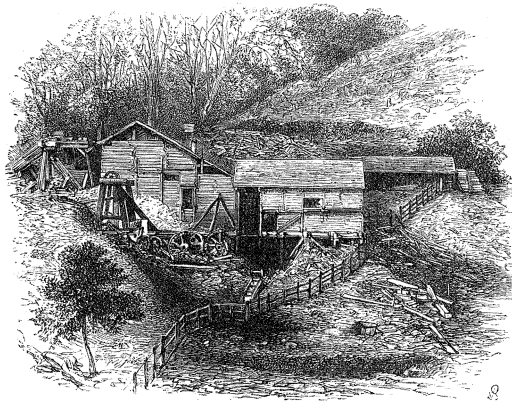


FIGURE 21. The gold mines at Chontales. (From Belt, 1873).

great continents of America, their flora, fauna and races,' he became perhaps the first scientist to describe Panama as the biological bridge of the Americas" (Heckadon-Moreno 1998). He returned to Panama and met von Warscewicz. Seemann wrote: "We spent several days in Taboga, the most beautiful island in the bay. A mount rises in its center of about 1,000 feet of altitude, cultivated with orchards and vegetables almost to its summit. Small streams run to the valley where, between palms and tamarinds, the huts of the natives lie almost hidden" (Heckadon-Moreno 1998). He returned to England in 1851, with more than 1000 plant specimens. Between 1852 and 1857, Seemann published his *The Botany of the Voyage of H.M.S. Herald*, a book in four volumes, one of which is the *Flora of the Isthmus of Panama*. It is the first flora of Central America after Mociño's *Flora de Guatemala* and Beurling's *Primitia florum portobellensis*, and Seemann described there 104 species of orchids. In 1865 he returned to Central America, employed by English interests to explore and operate gold mines in Nicaragua, where he started the operations of the mine of *El Javalí*, in Chontales (FIGURE 21). He collected plants in Nicaragua and in 1869, together with Bedford Pim, published *Dottings on the Roadside, in Panama, Nicaragua, and Mosquito*. From Nicaragua he traveled frequently to Panama, and although fully occupied with his business affairs, he always found time for botanical exploration. He dreamed of going back some day to conduct scientific investigation, but died at the age of forty-six in Chontales in October of 1871, another victim of yellow fever. Among Seemann's collections are the type specimens of *Pleurothallis perpusilla* (Seemann 1565, Panama) and *Masdevallia chontalensis* (Seemann 180, Nica-

ragua), both described by Reichenbach. Seemann met in Chontales the English geologist and naturalist Ralph Tate (1840–1901). "... [Tate] made a small collection of plants at Chontales ... at about the same date as Seemann, and perhaps in company with him, for the numbers are often ... the same in the two collections" (Hemsley 1884). Among the collections by Tate are *Physurus vaginatus* Hook. and *Isochilus linearis* R.Br. Three species, *Dendrobium seemannii* L.O.Williams; *Taeniophyllum seemannii* Rchb.f.; and *Trigonidium seemannii* Rchb.f. were all dedicated to Seemann.

### THE GERMAN-BELGIAN CONNECTION

The botanical explorations of Cuming, Skinner, Hartweg, Hinds and Seemann originated in the spirit of imperialist expansion which characterized the Victorian era. Cuming and Skinner were true examples of the English attempts to dominate world trade. Hartweg was one of many instruments used by the English upper classes to satisfy their enthusiasm for orchids as decorative subjects and Hinds and Seemann represented the scientific interests of a Great Britain that had achieved complete control of the oceans. After 1830 a current of liberalism developed in the rest of Europe, which intellectually defended freedom of thought and praised technology and the natural sciences. The liberals inherited the ideals of Enlightenment and the French Revolution and were therefore often subject to a fierce political repression. Therefore, a very different group of European adventurers, naturalists and scientists began arriving in Central America shortly after independence. They were individuals whose countries of origin had no practical interest in the new republics: merchants, scientists and political expatriates who in only a few years made great contributions to the knowledge of the orchids in Central America. With their English colleagues they had in common their 'Orchidomania,' both in the horticultural and the scientific meanings of the word. Why did Germany, and above all Belgium, contribute so many illustrious names to the history of orchidology during the first half of the nineteenth century? For Germany, the answer lies perhaps in a long botanical tradition and the influence of Humboldt on the romantic-liberal movement of the epoch. In the case of the Belgians, it may have been the nationalistic euphoria after the birth of Belgium as an independent nation. Let us remember that, as a result of the Congress of Vienna, the Prince of Orange had been proclaimed King of the United Low Countries in 1815. In 1830, the French speaking regions of the Low Countries gained their independence,

forming the Kingdom of Belgium. King Leopold I ascended to the Belgian throne in July, 1831.

Carl Christian Sartorius (1796–1872) was a German traveler who arrived in the region of Veracruz shortly after the independence of Mexico. The majority of the Spanish residents had emigrated to Cuba for political reasons and so Sartorius, in company with his countryman Carl Lavater, was able to purchase in 1826 a large part of the “Hacienda Amazónica,” an estate which had been the property of Francisco Arrilaga, with a total area of 12,000 acres. Sartorius established his residence in a place called ‘Paso de los Monos,’<sup>5</sup> which he called ‘El Mirador.’<sup>6</sup> El Mirador soon became a place of refuge for all naturalists who visited the area and is perhaps the most frequently cited Mexican locality of collection during the whole nineteenth century. A passionate botanist and generous host, Sartorius took into his house many of the travelers, especially Germans, who explored the Mexican Southeast during a good part of the century. Among them were Karwinsky, Schiede, Deppe, Hartweg, Heller, Galeotti, Leibold, Linden, Liebmann and Purpus. Many of them, like Sartorius, had left Europe for political reasons. Florentin, Sartorius’ son, continued his father’s tradition. El Mirador was a meeting place for naturalists and botanists until the first years of the twentieth century. Sartorius’ herbarium is now at the Smithsonian Institution. A list of species collected by Sartorius was published by Reichenbach in 1856 under the name of *Orchideae Mirandolanae (Mexicanae) Sartorianae*. We remember El Mirador in *Cyclopogon miradorensis* Schltr., whose description is based on a collection by J.A. Purpus in 1922 (*J.A. Purpus* 92, *El Mirador*). It is said that during his short stay in Mexico (1864–1867), the unfortunate Maximilian of Hapsburg bought an estate called “Jalapilla,” adjacent to “El Mirador,” with the purpose of enlarging his collections of plants and butterflies and also to chat and exchange scientific information with his neighbor. Maximilian had little time to enjoy the beauties of Mexican nature. He died in 1867, executed by the troops of Benito Juárez.

Ferdinand Deppe, Count of Sack (1794–1861), came to Mexico for the first time in 1824, collecting plants for the Botanical Garden of Berlin in the region of Veracruz. In 1828 he traveled to Mexico again, this time in the company of Doctor Christian Julius Wilhelm Schiede (1789–1836), who was a physician and a passionate botanist. Both were guests of Sartorius and explored in depth the environs of El

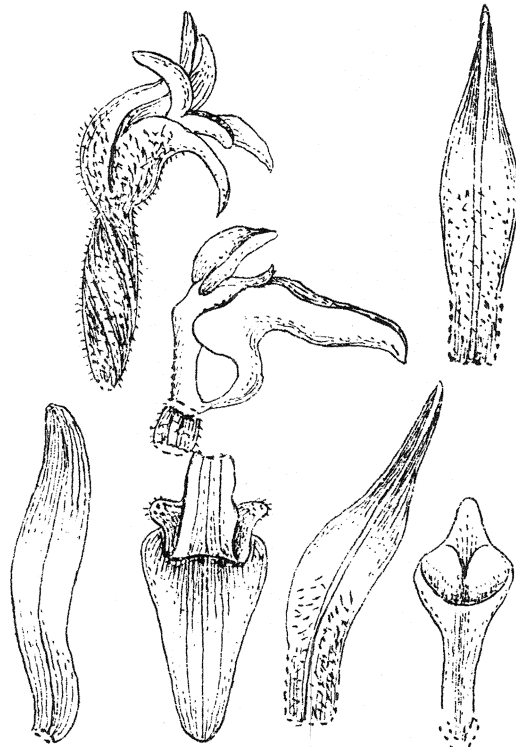


FIGURE 22. *Lycaste deppei* (Lodd.) Lindl. (Plate 3395. Curtis' Botanical Magazine).

Mirador and the states of Veracruz and Tabasco. Some sources indicate that Deppe also collected in Guatemala, although no collections by him in this country have been identified. Despite the short time they spent in Mexico, Deppe and Schiede discovered a great number of new orchid species. Worthy of mention are *Gongora galeata* (Lindl.) Rchb.f. (Deppe s.n.); *Campylocentrum schiedeii* (Rchb.f.) Benth. & Hemsl. (Schiede s.n.); *Dichaea neglecta* Schltr. (Schiede 1053); *Isochilus major* Schltdl. & Cham. (Schiede & Deppe 1046); *Lepanthes schiedeii* Rchb.f. (Schiede s.n.); *Lycaste deppei* (Lodd.) Lindl. (Deppe s.n.) (FIGURE 22); *Pleurothallis schiedeii* Rchb.f. (Schiede, W 25687); *Stanhopea oculata* (Lodd.) Lindl. (Deppe s.n., *Vanilla pompona* Schiede (Schiede & Deppe s.n.); *Vanilla sativa* Schiede (Schiede & Deppe s.n.); *Vanilla sylvestris* Schiede (Schiede & Deppe s.n.); and *Vanilla pompona* Schiede (Schiede 1043). Many species were dedicated to Deppe and Schiede, and Schiede was honored with a new genus created by Schlechter: *Schiedeella* (FIGURE 23). Aside from their botanical interests, Deppe and Schiede were also important contributors to the study of Mexican fauna; they collaborated with the German zoologist Wiegmann, an important investigator of tropical amphibians and reptiles. Schiede also made interesting observations on general aspects of the vegetation in the regions

<sup>5</sup> 'Pass of the monkeys'

<sup>6</sup> 'The look-out point'



Nr. 35. *Schiedella cobanensis* Schltr.

FIGURE 23. *Schiedella cobanensis* Schltr. (Drawing by R. Schlechter).

which he visited<sup>7</sup>. While Deppe returned to Germany in 1829, Schiede settled in Mexico, where he died in 1836, a victim of typhus.

Although born in Hungary, Wilhelm Friedrich Freiherr von Karwinski von Karwin (1780–1855) came to Mexico in 1827, supported by the “Deutsch-Amerikanischer Bergwerksverein zu Elberfeld”<sup>8</sup> to explore the possibilities of securing mining concessions in the country; but he was also moved by his botanical interests. Karwinski had been educated in Vienna and had become a mining engineer of distinction. After working more than a decade in Spain, he inherited some property in Bavaria and moved there in 1815. He became interested in traveling to America; and after unsuccessful attempts to associate himself with the Brazilian expeditions of Martius, he visited Brazil, apparently at his own expense, in 1821–23 (McVaugh 1980). Of interest for our study are Karwinski’s collections near Oaxaca and Tehuantepec during his first

trip to Mexico (1827–1832), where he collected, among others, the type of *Habenaria clypeata* Lindl. The botanical specimens from Karwinski’s first trip to Mexico went to the Botanical Garden in Munich. Karwinski’s second trip to Mexico (1841–1843), when he was already 60 years old, was undertaken under the auspices of five different sponsors in St. Petersburg. By the terms of this agreement, he was to look for plants and animals, but primarily he was to search for minerals in commercial deposits. His trip was very successful, botanically speaking. He returned with more than 2000 specimens (McVaugh 1980) which now are mostly in Leningrad. Some of his collections of Orchidaceae were *Cranichis tubulosa* Lindl. and *Isochilus cernuus* Lindl. Reichenbach dedicated to him his *Epidendrum karwinski* Rchb.f., today a synonym of *Prosthechea bicamerata* (Rchb.f.) W.E.Higgins, from a specimen collected by Karwinski in Teoxmulco, Oaxaca. Lindley named in his honor his *Cyrtorchilum karwinski* and Martius his *Cattleya karwinski*. His main explorations during this trip were in the northern lowlands of Veracruz, where he traveled for a few months with the Danish botanist F. M. Liebmman. As Liebmman wrote on February 21, 1841: “Mexico’s present situation makes it to a certain extent advisable with combined strengths to brave the dangers with which a completely demoralized population, anarchy and lawlessness will each day confront us . . .” (McVaugh 1980).

The Austrian Carl Bartholomäus Heller (1824–1880) left England on October 2, 1845, in the company of Hartweg, and collected in Mexico between 1845 and 1848, becoming one of the many guests of Sartorius at El Mirador. In 1846 he sent 14 boxes of orchids to Vienna. (Anonymous 1854). Among his collections we can find the types of *Govenia deliciosa* Rchb.f. (Heller, *El Mirador*, W-Rchb. 42259); *Mormolyca lineolata* Fenzl. (Heller s.n., *El Mirador*); and *Epidendrum helleri* Fenzl. ex Hemsl. (Heller s.n.). Heller’s account of his travels through Mexico are of great interest, especially the phytogeographical description of the region around the Orizaba volcano (Heller 1847).

The German Friedrich Ernst Leibold (1804–1864) arrived in Mexico in 1839. As one of many guests of Sartorius, he collected mainly in Zacuapán, in the neighborhood of El Mirador. Reichenbach named *Leochilus leiboldi* after him, and Hemsley mentions many of his orchid collections, such as *Epidendrum seriatum* Lindl.; *Sobralia macrantha* Lindl.; *Govenia mutica* Rchb.f.; *Maxillaria pumila* Hook.; and the types of *Brassavola* (= *Homalopetalum*) *pumilio* Rchb.f. and *Lepanthes pristidis* Rchb.f.

<sup>7</sup> Schiede, W., 1829–1830, *Botanische Berichte aus Mexiko*

<sup>8</sup> ‘German-American Mining Company of Elberfeld’.

Emmanuel Ritter von Friedrichsthal (1809–1842) was born in Bohemia. In 1839 he traveled through Nicaragua and Costa Rica, continuing to Panama, Guatemala and Yucatán. In early 1839, after visiting the Antilles he disembarked in San Juan del Norte, Nicaragua; and after exploring the Pacific coast of the other Central American countries, arrived in Costa Rica, possibly via Puntarenas (León 2002). He botanized extensively in Costa Rica between 1839 and 1842, along the Río San Juan and from Guanacaste to Cartago (Grayum et al. 2004). However, all of his collections at Kew are labeled “Guatemala.” Friedrichsthal, like many others before him, applied the name “Guatemala” to Central America as a whole, probably in keeping with the custom of colonial times of calling the region “Captaincy General of Guatemala” or “Kingdom of Guatemala.” The confusion is clear in the description of one of the new species of Orchidaceae known from Friedrichsthal’s collections: *Maxillaria friedrichsthalii* Rchb.f., (*Friedrichsthal*, AMES 25856) (FIGURE 24). In Reichenbach’s description, the locality of the collection is referred to as: *Guatemala, Chontales, in Monte Aragua*, although it is well known that Chontales is in Nicaragua. Other collections by Friedrichsthal include the type of *Ornithocephalus inflexus* Lindl. (*Guatemala, am Fluss Torre*), *Gongora quinquenervis* Ruiz y Pav. (*Guatemala, San Juan River*) and *Schomburgkia tibicinis* Batem. (*Río de Mico, Petén*). Friedrichsthal is considered one of the pioneers of expedition photography. Already in the year after Daguerre’s technique was publicized (1837), he employed this new technique to depict Mayan ruins. In 1840, he was the first European to describe Chichén Itzá. He must have met Skinner, who in one of his letters to Alexander MacDonald<sup>9</sup> in Belize asks: “Did le Chevalier Frederickstal [sic] find much up the river?” (Letter from Skinner to MacDonald, Feb. 26, 1841). It was, by the way, MacDonald’s wife who introduced the type specimen of *Brassavola* (= *Rhyncholaelia*) *digbyana* Lindl. from Belize into England; today it is the National Flower of Honduras. A large part of Friedrichsthal’s collection and equipment was stolen during a robbery in the province of Yucatan, at the southern end of the peninsula of the same name. In late October 1841 he reached Vienna, suffering from the serious illness he had caught in Latin America and which was to lead to his death a few months later.

Augustus Fendler (1813–1883) was born in

<sup>9</sup> Archibald Alexander MacDonald served two terms as the powerful British Superintendent of Belize, from 1829–1830 and from 1837 to 1843.



FIGURE 24. *Maxillaria friedrichsthalii* Rchb.f. (Illustration by Blanche Ames, courtesy of the Oakes Ames Orchid Herbarium, Harvard University).

Gumbinnen, Prussia, and came to the United States in 1836 to work variously at a tanyard in Philadelphia, a lamp factory in New York, and a gas works in St. Louis, until he discovered that a market existed for dry plants. George Engelmann, of St. Louis, Missouri, trained him as a collector. Fendler began his travels in the southwestern United States and collected later in Mexico, Nicaragua, Panama and Venezuela. In 1846 he was in Nicaragua, where he made a small collection of plants near Greytown (San Juan del Norte). He went on to Panama in 1850, and his collections from this area are preserved at Kew and Missouri. In Panama he collected, among others, *Oncidium ampliatus* Lindl. (Fendler 331); *Dimerandra emarginata* (G.Mey.) Hoehne (Fendler 332); *Dichaea panamensis* Lindl. (Fendler 333); and *Polystachya*

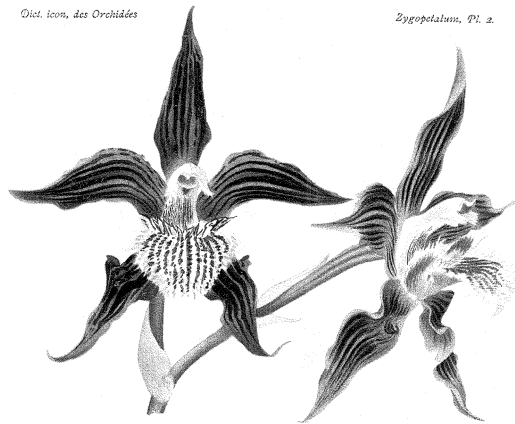


FIGURE 25. *Galeottia grandiflora* A.Rich. & Gal. (Illustration by A. Goosens, Dictionnaire Iconographique de Orchidées).

*foliosa* (Lindl.) Rchb.f. (Fendler 334). Although all appear to be from Venezuela, only three new types of orchids are known among Fendler's collections: *Cranichis fendleri* Schltr.; *Liparis fendleri* Schltr.; and *Stelis fendleri* Lindl. He returned to Germany, but in the 1860s we find him again in the United States, where he worked as an assistant to the great botanist Asa Gray. He then took up what Gray in dismay called "speculative physics," publishing a thin book, *The Mechanism of the Universe* (1874). Perhaps disappointed with its reception, Fendler spent the rest of his days on the island of Trinidad, where he died in 1883.

The arrival of Versailles native Henri Guillaume Galeotti (1814–1858) began the exploratory activities of a surprising group of botanists and collectors from a small country that had gained its political independence only a few years earlier. Sponsored by the Vandermalen brothers, Belgian nurserymen, Galeotti left Hamburg in 1835 for Mexico, where he spent five years, collecting mainly in Veracruz, Mexico and Oaxaca. Like many others, he was a guest of Sartorius in El Mirador. Galeotti's herbarium was estimated at 7000 to 8000 specimens, containing many new species, which he later described in conjunction with the French botanist Achille Richard (1794–1852). Some of the new species of Orchidaceae collected by Galeotti in Mexico were *Barkeria melanocaulon* A.Rich. & Gal. (*Galeotti* 5069); *Bletia adenocarpa* Rchb.f. (*Galeotti* 5345); *Cyclopogon luteo-albus* (A.Rich. & Gal.) Schltr. (*Galeotti* s.n.); *Cyclopogon saccatus* A.Rich. & Gal. (*Galeotti* 9124); *Epidendrum galeottianum* A.Rich. & Gal. (*Galeotti* 5194); *Epidendrum longipetalum* A.Rich. & Gal. (*Galeotti* 5238) *Epidendrum*



FIGURE 26. Jean Jules Linden (1817–1898). (From *Gardeners' Chronicle*, courtesy of the Hunt Institute for Botanical Documentation).

*propinquum* A.Rich. & Gal. (*Galeotti* 5265); *Masdevallia galeottiana* A.Rich. & Gal. (*Galeotti* 5075); *Pleurothallis violacea* A.Rich. & Gal. (*Galeotti* s.n.); *Prosthechea chondylobulbon* (A.Rich. & Gal.) W.E.Higgins (*Galeotti* s.n.); and *Schiedella violacea* (A.Rich. & Gal.) Garay (*Galeotti* 5120). Two orchid genera were named in honor of Galeotti: *Galeottia* (FIGURE 25), by his friend and colleague Richard, and *Galeottiella* by Rudolf Schlechter. After his return to Belgium in 1840, Galeotti was elected president of the recently founded "Société Royale d'Horticulture de Belgique," a position he held until his death in 1858. His herbarium was acquired by the Society and remains in Brussels.

A native of Luxembourg, Jean Jules Linden (1817–1898) moved to Belgium as a young man, where he became one of the first students of the recently founded University of Brussels (FIGURE 26). At the age of nineteen he was entrusted by the Belgian government (at the suggestion of Barthélemy Du Mortier, botanist and statesman) with his first scientific mission, which would take him to South America (Linden 1894). Be-



tween 1835 and 1837, he explored the Brazilian provinces of Rio de Janeiro, Spiritu-Santo, Minas Gerais and Sao Paulo. His second expedition, in the company of his countrymen Funck y Ghiesbreght, departed for Havana in October of 1837 and went on to Mexico, resting at Carl Sartorius' home in El Mirador. They proceeded to the east: "Linden first went to Yucatan, and thence to the States of Chiapas and Tabasco; visiting and exploring the districts of Ciudad Real, Cacaté, San Bartolo Titotoli, Santiago de Tabasco, Teapa, Puyapatengo, etc. where he formed by far the largest collection we have seen from those parts of Mexico" (Hemsley 1884). He continued from there to northern Guatemala, returning then to the coast of the Gulf of Mexico. A third and last expedition, between 1841 and 1845, would take him to Venezuela and Colombia (where he would meet Karl Hartweg), in the company of Joseph Schlim and Funck. In 1851 he established himself in Brussels, where he found greater possibilities to commercialize his plants, as well as clients who were willing to pay considerable sums for new species, especially orchids. From 1851 to 1861 he was the director of the Royal Zoological and Botanical Gardens at Leopold Park in Brussels. Linden, who maintained close relations with English horticulturists, quickly adopted the new techniques of the Industrial Revolution and built greenhouses of gigantic proportions in Ghent and Brussels, becoming soon the favorite supplier of the members of the upper classes. Among his clients he counted even the Czar of Russia. In addition to the great number of species he introduced into Europe, Linden had the merit of studying closely the conditions in which the orchids grew in nature and adapting the cultural methods in Europe to these conditions, thus creating in his greenhouses "real" microclimates for the plants he imported. Important also were several publications in which Linden played an important part: *L'Illustration horticole* (1854–1896), *Pescatorea* (1860), and *Lindenia* (1885–1906, continued by his son Lucien). Some of the species whose types were collected by Linden and deserve to be mentioned are *Brachystele minutiflora* (A.Rich. & Gal.) Burns-Bal. (Linden 1237); *Gongora truncata* Lindl. (Linden s.n.); *Notylia orbicularis* A.Rich. & Gal. (Linden 216); *Oncidium lindenii* Brongn. (Linden s.n.); *Prosthechea panthera* (Rchb.f.) W.E.Higgins (Linden 1236); *Sarcoglottis corymbosa* Garay (Linden 1232); *Stelis ciliaris* Lindl. (Linden 203); and *Stelis purpurascens* A.Rich. & Gal. (Linden 211). Linden had an enormous influence on European orchidology during the last two thirds of the nineteenth century. His nurseries,



FIGURE 27. Nicholas Funck (1816–1896). (Courtesy of Rudolf Jenny).

managed by his son Lucien after his death, survived until World War I.

The Belgian Auguste Boniface Ghiesbreght (1819–1893) and the Luxembourgian Nicholas Funck (1816–1896) (FIGURE 27) explored Mexico (especially the states of Tabasco and Chiapas) together with Linden. While Funck later joined Linden in his third expedition to South America, Ghiesbreght returned to Mexico in 1840, where he gathered important collections. Between 1850 and 1855 he made his third voyage to Mexico and his second to Chiapas, forgetting the dangers he had encountered before and which had almost cost him his life.<sup>10</sup> Ghiesbreght was perhaps the botanist with the greatest knowledge of the flora of northern Mesoamerica during the first half of the nineteenth century. Although his collections were primarily of plants from other families, he discovered an important number of new species of Orchidaceae which were described by Richard and Galeotti in the *Annales des sciences naturelles*, a journal whose publication had begun some years earlier

<sup>10</sup> A vivid description of his journeys through Mexico can be read in a letter from Ghiesbreght to Morren dated Oct. 14th, 1849.





FIGURE 28. *Calanthe calanthoides* (A.Rich. & Gal.) Hamer & Garay. (Illustration by Pilar Casasa, published with her permission).



FIGURE 29. Josef Ritter von Rawiez Warscewicz (1812–1866). (Courtesy of the Hunt Institute for Botanical Documentation).

in Paris, edited by Adolphe Théodore Brongniart. Funck, who was Linden's favorite illustrator, also made important contributions to the knowledge of Central American orchids. Among the types collected by Ghiesbreght and Funck, or dedicated to them, are the following: *Brachystele sarcoglossa* (A.Rich. & Gal.) Burns-Bal. (*Ghiesbreght s.n.*); *Calanthe calanthoides* (A.Rich. & Gal.) Hamer & Garay (*Ghiesbreght s.n.*) (FIGURE 28); *Encyclia ghiesbreghtiana* (A.Rich. & Gal.) Dressler (*Ghiesbreght 6*); *Oncidium ghiesbreghtianum* A.Rich. & Gal. (*Ghiesbreght W 27024*); *Spiranthes cinnabarinus* Hemsl. (*Ghiesbreght s.n.*); and *Epidendrum funckianum* A.Rich. & Gal. (*Funck s.n.*). Richard and Galeotti dedicated the genus *Ghiesbreghtia* and Schlechter the genus *Funkiella* to these two great Belgian botanists.

"Last Monday George brought here a Pole—a great traveller & one of the first botanists in the world. His name is Warscewicz. . . . He talks a mixture of Spanish and Polish, & wears a beard, in fact, is all hair, from his nose downwards!" Mrs. Skinner, in a letter to her friend Juliana Raymond dated April 15, 1850, described with these words her first encounter with Josef Ritter von Rawiez Warscewicz (1812–1866) (FIGURE 29). Warscewicz was born in

Lithuania of Polish ancestors, and received his initial training in botany at Jundzill Botanical Gardens in Poland (presently in Vilnius, Lithuania) and at the Berlin Botanic Gardens, and then joined a Belgian contingent of settlers in Guatemala in 1845 to collect plants for the nurseryman Van Houtte of Ghent, Belgium (Milligan & Banks 1999). He had also interest in hummingbirds, "certainly a choice of interests in which he was to be envied" (Heckadon-Moreno 1998). However, the new Belgian colony in Santo Tomás, Guatemala, was a complete failure. They sold him the idea that he would find a prosperous town full of rich settlers. When he arrived in February of 1845, Warscewicz found that instead of the promised city, there was only a hamlet of straw huts. Instead of rich and active settlers, he found immigrants so sick that they looked like corpses raised from the dead. From the 32 healthy and strong individuals who arrived with Warscewicz from Europe to join the colony, only our botanist and the group's physician survived. Thanks to Humboldt's recommendation, Warscewicz initiated correspondence with Skinner, with whom he did not start off well, possibly because they did not meet personally until 1850 (Skinner was at the time in Eng-

land). In letters dated Sept. 15 and Dec. 15, 1846, Skinner wrote to Hooker, "I have had enough of him ..." "... And I am disgusted with Warscewicz and almost feel inclined to have nothing more to do with him." But the relations would improve, until Skinner became an admirer of the extravagant Pole. From Guatemala, Warscewicz travelled to El Salvador, where, due to extensive deforestation, he found only a few plants. He went on to Nicaragua and there met Dr. Oersted who informed him of the best regions for botanical exploration. Together they explored the forests of Nueva Segovia, collecting 2000 specimens of orchids. His next destination was Costa Rica, where he arrived in 1848, and then Panama, collecting later in several countries of South America. In 1850 he again passed through Costa Rica and Panama, returning to Europe after a bad attack of yellow fever. There he finally met Skinner, who took him into his house because of Warscewicz's ruinous financial situation: "... [P]oor fellow, I am afraid he will find it difficult to recover his expenses" (Letter from Skinner to Hooker, April 3, 1850). After he met him, Skinner wrote enthusiastically to Lord Derby: "He is strong as iron in constitution, fearless as a lion of dangers & enthusiastic beyond description" (April 27, 1850). He spent several months in Berlin as assistant to Reichenbach, describing over 300 species of orchids. In those days he published and offered for sale a list of orchids which he had brought from Central America. Not used to sedentary work, he embarked for America again in 1851 and passed a last time through Panama. At the end of the year he was in Guayaquil, where he was robbed and lost his money and equipment, returning finally to Europe in 1853. Warscewicz was offered the position of supervisor at the Botanical Gardens of Krakow, a job he held until his death in 1866. Together with the director, Ignacy Rafel Czerwiakowski, he published *Catalogus Plantarum (Cracoviae 1864)*, listing 8911 taxa cultivated in the garden, including some 300 species of Orchidaceae (Yearsley 2004). It was undoubtedly in Costa Rica and Panama that he collected the greatest number of orchids. In Costa Rica he explored chiefly the central region of the country and climbed the Barva and Irazú volcanoes. In Panama, his favorite collecting sites were the highlands of Chiriquí, which he came to consider as an orchidological paradise. It is again Skinner, in one of his many letters to Hooker (July 11, 1848), who tells us about the newly discovered beauties: "Mr. Warscewicz has sent me some 20 boxes of orchids ... He is now in Veraguas on his way south, but so rich do I observe Costa Rica to be, I will persuade him to return and

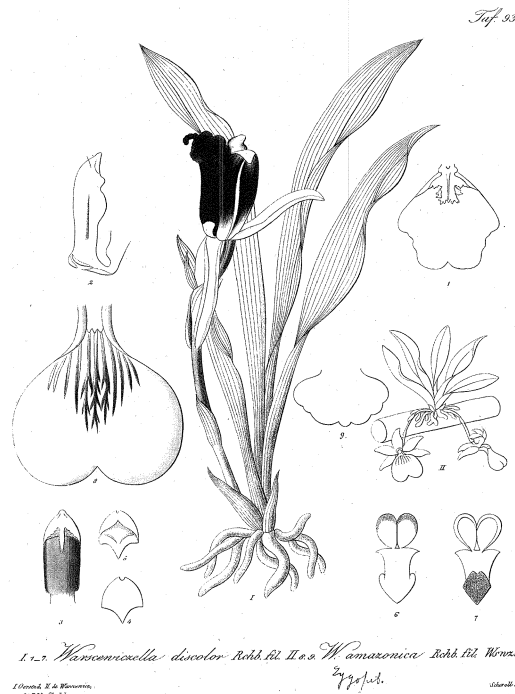


FIGURE 30. *Warscewiczella discolor* Rchb.f. (Plate 93. Xenia Orchidacea I).

winter in Veraguas and Costa Rica ... They are splendid examples of the richest orchid country in the world." Reichenbach described his collections in 1854 (*ORCHIDEAE WARSCEWICZIANAE RECENTIORES*) and in 1866 under the title of *ORCHIDEAE WARSCEWICZIANAE*, and wrote: "the name of Von Warscewicz shines among those who have enlarged in a very considerable form the knowledge of orchids" (Reichenbach 1866). Some of the types collected by Warscewicz are *Epidendrum incomptum* Rchb.f. (Warscewicz s.n., Panama); *Elleanthus hymenophorus* (Rchb.f.) Rchb.f. (Warscewicz s.n., Panama); *Lacaena spectabilis* (Klotzsch) Rchb.f. (Warscewicz W-Rchb. 44742, Centroamérica); *Maxillaria aciantha* Rchb.f. (Warscewicz s.n., Costa Rica); *Maxillaria atrata* Rchb.f. (Warscewicz s.n., Guatemala); *Maxillaria ringens* Rchb.f. (Warscewicz s.n., Guatemala); *Mesospinidium warscewiczii* Rchb.f. (Warscewicz s.n.); *Oerstedella centropetala* (Rchb.f.) Rchb.f. (Warscewicz s.n., Panama); *Oncidium warscewiczii* Rchb.f. (Warscewicz s.n., Costa Rica and Panama); *Prosthechea brassavolae* (Rchb.f.) W.E.Higgins (Warscewicz W-Rchb. 64, Panama); and *Sobralia warscewiczii* Rchb.f. (Warscewicz s.n., Panama). Reichenbach named the genus *Warscewiczella* (FIGURE 30) and a great number of species after him. While col-

lecting in Tropical America, Warscewicz sent to the Botanical Garden in Krakow a number of interesting orchids, most of which unfortunately were lost during a severe winter. Those orchids that were rescued were used by Franck<sup>11</sup> during the German occupation of Poland in the years 1939–1945 as decoration of his residence in Krakow and were never returned to the Botanical Garden (Sampolinski 1963).

### THE SCANDINAVIANS

"Our Genus is *Homo* and our species is *sapiens*, and Linnaeus gave us our name. Thus we write our name *Homo sapiens* L." (Anonymous). Carl von Linné (1707–1778) is called, with justice, "the father of taxonomy." In his famous *Species Plantarum* of 1753, he set the foundations for modern botanical nomenclature. Linné was not only the greatest botanist of his century, but also founded a school of scientists whose names had enormous relevance in the second half of the eighteenth and all of the nineteenth century. Among his disciples and followers we find Pehr Kalm (1716–1779), who traveled during three years studying the plants of the North American colonies; the unfortunate Pehr Löfling (1729–1756), who participated in the Spanish expedition to the Orinoco; and Daniel Solander (1733–1782), who was Cook's naturalist during his first voyage around the world and introduced to Europe the first collections of plants from Australia and the South Pacific. In tropical America we must mention the Dane Julius von Roth (1737–1793), who was in Jamaica, Puerto Rico and the Lesser Antilles between 1757 and 1791. Above all we include the great Swede Olof Swartz (1760–1818), who explored Jamaica, Cuba and Haiti from 1784 to 1786, later publishing his *Flora Indiae Occidentalis* (1797–1806), in which he described many new species of orchids. Although no orchids are known among his collections, it is also important to name here Johann Emmanuel Billberg (1798–1845), a young Swedish physician who visited Portobello in Panama in 1826 and made there an important collection of plants. Nearly 30 years later, after Billberg's death, Beurling published his *Primitiae florum portobellensis* (1854), the first formal list of Panamanian plants, based upon this collection.

Two descendants of Linné's great school, both Danes, were protagonists in the history of Central America's orchids during the first half of the nineteenth century: Michael Frederik Liebmann



FIGURE 31. Michael Frederik Liebmann (1813–1856). (Courtesy of the Botanical Garden & Museum, Copenhagen).

(1813–1856) (FIGURE 31) studied in Copenhagen under the great Danish botanist Frederik Schouw and departed in 1840 to Mexico to form botanical and zoological collections, thanks to a grant from the King of Denmark. In the company of a gardener, he soon established himself in the region of Veracruz and was one more of the numerous guests of Carl Sartorius in his estate El Mirador. He seems to have collected also in Guatemala.<sup>12</sup> He collected in the area until 1843, when he returned to Denmark with a herbarium of 40,000 plants and considerable zoological collections. In 1845 he was appointed Professor of Botany at the University of Copenhagen and, in 1849, director of the Botanical Gardens. Alone and in conjunction with other botanists, he published many new species, but his death at a relatively young age meant that many of the natural orders were left untouched. One of his most important works, *Chênes de l'Amerique Tropical*,<sup>13</sup> was unfinished but was later completed by Oersted. Some of the orchid specimens collected by Liebmann became the types for new species: *Dichaea liebmanni* Rchb.f. (*Lieb-*

<sup>11</sup> Hans Franck was Governor of occupied Poland and was later sentenced to death by the Nuremberg War Crimes Tribunal.

<sup>12</sup> Ames, O., 1985, in *Orchids of Guatemala and Belize*, p. 475, mentions a collection of *Epidanthus paranthicus* (Rchb.f.) L.O.Wms. by Liebmann in Guatemala.

<sup>13</sup> 'Oaks of tropical America'

mann s.n., *El Mirador*); *Jacquiniella leucomelana* (Rchb.f.) Schltr. (*Liebmann s.n., Mexico*); *Odontoglossum beloglossum* Rchb.f. (*Liebmann, W-Rchb. 43391, Mexico*); and *Ponthieva campestris* (Liebm.) Garay (*Liebmann 313, Veracruz*). The orchids collected by Liebmann were later studied by Kränzlin and by Louis O. Williams.

According to Hemsley, we are indebted to Anders Sandö Oersted (1816–1872), who explored Costa Rica and Nicaragua between 1846 and 1848, for almost all we know of the botany of Costa Rica (Hemsley 1884) (FIGURE 32). In 1845, after several years of teaching and investigation in Denmark, he started a scientific expedition to the Dutch islands in the Caribbean and Jamaica. From there he went to Nicaragua at the end of 1846, arriving at Bluefields and later going to San Juan del Norte. He entered Costa Rica through Puntarenas. Oersted collected intensively in Costa Rica and Nicaragua, especially in the great volcanic chain which includes the Irazú, Barba and El Viejo volcanoes. His collection of more than 900 species of superior plants, among them some 80 Orchidaceae, were later described by Reichenbach in his *ORCHIDEAE OERSTEDIANAE*, which formed part of his great work on the orchids of Central America of 1866. Among the many species discovered by Oersted, all described by Reichenbach, are the following: *Beloglottis costaricensis*



FIGURE 32. Anders Sandö Oersted (1816–1872). (Courtesy of Rudolf Jenny).



FIGURE 33. *Bulbophyllum oerstedii* (A.Rich.) Griseb. (Illustration by Pilar Casasa, published with her permission).

(Rchb.f.) Schltr. (*Oersted s.n., Costa Rica*); *Bulbophyllum aristatum* Rchb.f. (*Oersted s.n., Central America*); *Bulbophyllum oerstedii* Rchb.f. (*Oersted 6746, Nicaragua*) (FIGURE 33); *Catasetum oerstedii* (= *maculatum*) Rchb.f. (*Oersted s.n., Nicaragua*); *Dichaea oerstedii* Rchb.f. (*Oersted s.n., Nicaragua*); *Epidendrum oerstedii* Rchb.f. (*Oersted s.n., Costa Rica*); *Habenaria oerstedii* Rchb.f. (*Oersted s.n., Nicaragua*); *Lockhartia oerstedii* Rchb.f. (*Oersted W-Rchb. 44337, Costa Rica*); *Oncidium oerstedii* Rchb.f. (*Oersted s.n., Nicaragua*); *Pleurothallis segoviensis* Rchb.f. (*Oersted s.n., Nicaragua*); *Polystachya masayensis* Rchb.f. (*Oersted s.n., Nicaragua*); and *Odontoglossum* (= *ticoglossum*) *oerstedii* Rchb.f. (*Oersted s.n., Costa Rica*). Reichenbach honored him in his description of the genus *Oerstedella*. In February of 1848 Oersted went to the region of Guanacaste. The purpose of this trip, promoted by the government of Costa Rica, was to study the possibility of opening a canal which would connect the bay of Salinas with the Lake of Nicaragua. Oersted presented a plan for the construction of the canal (Oersted 1851), but no further attention was paid to the project (León 2002). He returned to Denmark in 1848 and was later appointed Professor of Botany, succeeding Liebmann in this position (Brown 1873). Oersted was a great naturalist and a first class observer, who left vivid descrip-

tions of the landscape of the different regions of his travels. In 1863 he published his work on Central America: *L'Amerique Centrale, recherches sur sa flore et sa geographie physique*.<sup>14</sup> A posthumous work, *Praecursores Florae Centroamericanae* published in Copenhagen in 1873, contains fragments of articles by Oersted and contributions of other authors about his collections of mosses, Araceae and others (León 2002).

### MANIFEST DESTINY

"We may confidently assume that our country is destined to be the great nation of futurity" (John L. O'Sullivan, about "Manifest Destiny," 1839). No nation ever existed without some sense of national destiny or purpose. Manifest Destiny, a phrase used by leaders and politicians in the 1840s to explain continental expansion by the United States, revitalized a sense of "mission" or national destiny for many Americans. Expansionists were also motivated by more immediate, practical considerations. Southerners eager to enlarge the slave empire were among the most ardent champions of the crusade for more territory. Washington policy-makers, anxious to compete with Great Britain for the Asia trade, had long been convinced of the strategic and commercial advantages of San Francisco and other ports on the Pacific coastline of Mexican-owned California.

### THE MEXICAN-AMERICAN WAR AND THE DECLINE OF BRITISH HEGEMONY

As soon as Houston's long awaited order to advance was given, the Texans did not hesitate. The shouts of "Remember the Alamo" rang along the entire line. Within a short time, 700 Mexicans were slain, with another 730 taken as prisoners. The battle for Texas was won. The independence of Texas from Mexico led to the Mexican-American war of 1846-1848, resulting in the acquisition by the United States of the states of Texas, New Mexico, Arizona, Nevada, California, Utah, and parts of Colorado, Wyoming, Kansas and Oklahoma. Almost one third of the present area of the United States, nearly a million square miles of territory, changed sovereignty. Several botanists were in the expedition which was later sent out to survey the Mexican-American border, in order to define the limits between the two countries. Among them was Charles Wright, who would afterwards ex-

plore Nicaragua and the Antilles. However, the true importance of the Mexican-American War was that it represented the beginning of the end of British hegemony in Central America. Thus the United States took the first step on the way to its "manifest destiny" as a world empire which, some fifty years later, would become the sole arbiter of the fate of the Central American countries. During the second half of the nineteenth century, the expansionist ambition of the United States would focus increasingly on Central America and the Caribbean. With the turn of the century, the Spanish-American War, the independence of Panama from Colombia (enforced by the United States), and the occupation of Nicaragua by the Marine Infantry in 1912 converted the Caribbean into a true "Mare Nostrum" of the American navy (Pérez Brignoli, H. 2000). Political, economic and social life of Central America, although still strongly influenced by the ideas of European liberalism, gravitated each day more strongly into the United States' orbit. The most important political decisions in the life of the "Banana republics" during the second half of the nineteenth century were made in Washington and in the headquarters of the multinational companies in New York and Chicago.

The history of orchids in Central America was not immune to these developments. The European monopoly of botanical exploration in the region started to fade. The Royal Botanic Gardens at Kew had become, during the first half of the nineteenth century, the indisputable center of world orchidology. Although Kew has retained a preeminent role until the present day, its attention began to focus more and more on the colonies of the growing British Empire in Africa and Asia, and on South America, where North American influence was not yet strong. A gentlemen's agreement seems to have been established, where Monroe's expression, "America for the Americans," had its counterpart in an unspoken thought: "the British Empire for the British."

In the United States two institutions were founded which, in the following decades, would become the leaders in the exploration of the Central American territories and would have an enormous influence on the scientific life of the region. Ironically, both were created by British citizens. In 1846 an act of Congress was approved to carry out the terms of the will of James Smithson (1756-1829), a prominent English scientist who, strangely enough, had never visited America. Smithson bequeathed his entire estate to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase

<sup>14</sup> 'Central America, studies about its flora and physical geography'



FIGURE 34. Henry Shaw (1800–1889). (Sketch in a postcard from MLB's postcard series, courtesy of the Hunt Institute for Botanical Documentation).

and diffusion of knowledge . . ." Henry Shaw (1800–1889), a native of Sheffield, England, moved to Saint Louis, Missouri, in 1819 (FIGURE 34). He had such success in his business that he was able to retire at the age of 40. On a trip back to England, he was inspired by the grounds of Chatsworth, the most magnificent private residence in Europe. When he returned to the U.S., he decided to begin his own botanical garden. Shaw opened his garden to the public in 1859. It grew in the European tradition of horticultural display combined with education and the search for new knowledge. This institution, now known as the Missouri Botanical Garden, is acclaimed today as a leader in botanical investigation, with projects on five continents. To the aforementioned institutions we must add three more: the New York Botanical Garden, created in 1891 by the botanist Nathaniel Lord Britton; the "Columbian Museum of Chicago," founded in 1893 and known today as the Field Museum of Natural History, fundamental to the history of the orchids of Central America in the twentieth century; and the United States National Herbarium, created in 1894.

While Mexico struggled in never ending internal fights for power after the disaster of the

Mexican–American war, in which Mexico had lost two fifths of its territory, botanical exploration continued. In 1850 the Royal Horticultural Society sent the Dalmatian Mateo Botteri (1808–1877) to collect in Mexico. After the financial resources of the Society failed, Botteri stayed in Mexico, collecting on his own and selling his specimens in London. "His collections of plants were very fine and extensive, and there is a full set in the Kew Herbarium, chiefly from the neighborhood of Orizaba . . ." (Hemsley 1884). Botteri settled in Mexico and died in the vicinity of Veracruz. According to Schlechter (1918), there were many orchids among his specimens, although most of them were described from collections by others. One of them was *Cranichis cochleata*, common in Veracruz, Chiapas and Guatemala, and described years later by Dressler as a new species from a collection by M.C. Carlson.

Frederick Müller (unk.–ca. 1855), a native of Alsace, came to Mexico in 1853, to collect for the firm of Schlumberger in Mulhouse. Hemsley (1884) mentions several collections by Müller, all from the region of Veracruz, based on a complete set which is at Kew. Worthy of mention are *Cattleya citrina* Lindl. (Müller s.n.); *Hartwegia purpurea* Lindl. (Müller 1414); *Odontoglossum cordatum* Lindl. (Müller 488); *Spiranthes orchroides* Hemsl. (Müller 810); *Stanhopea bucephalus* Lindl. (Müller 503); and *Stanhopea tigrina* Batem. ex Lindl. (Müller 976); as well as the type of *Lepanthes orizabensis* R.E.Schult. & G.W.Dillon (Müller s.n., Orizaba, Veracruz). He died under strange circumstances. "It is supposed that he was murdered and concealed, as he disappeared and was never heard of afterwards" (Hemsley 1884).

#### THE CALIFORNIA GOLD RUSH AND THE INTEROCEANIC CANAL

"Boys, by God, I believe I have found a gold mine!" (James Wilson Marshall, January 12, 1848). The discovery of gold in California was the spark which ignited the most massive human migration in the history of America. Over 90,000 persons traveled to California in the two years which followed Marshall's discovery, and over 300,000 in 1854. The gold fever in California led to the exploration of shorter routes between the Atlantic and Pacific Oceans; the San Juan River in Nicaragua and the Isthmus of Panama became the passages for fast travel from one coast to the other. Thousands of adventurers (initially from North America and later from the whole world) came to Central America, a forgotten region which suddenly became one of the areas of greatest passenger traffic and a major



focal point of world attention. As Carl B. Seemann complained: "We arrived in Panama on January 19, 1849, after an absence of almost nine months. The stories of the recently discovered Californian mines . . . brought such a number of adventurous emigrants that the usual facilities of food and lodging collapsed completely" (Heckadon-Moreno 1998). The Clayton-Bulwer Treaty of 1850, although permitting England to retain her positions in Belize, the Mosquito Coast, and the Bay Islands, accepted for the first time the U.S. pretensions to control the future interoceanic canal. Great Britain, although maintaining all her possessions in Central America and still retaining much power during the 1850's, began ceding ground in favor of the United States. Effective control of the area by the United States had begun in 1847, with the foundation of the "Panama Railroad Company," with the purpose of building a railroad between Colón and Panama City. Two years later, in 1849, the North American tycoon Cornelius Vanderbilt founded the "American Atlantic Pacific Ship Canal Company," with the intention of building an interoceanic canal in Nicaragua. The San Juan River and the Lake of Nicaragua were initially used for this passage. Vanderbilt's first steamers navigated the San Juan River in 1851, while the first train crossed the Isthmus of Panama on January 28, 1855. The competition between the two routes was strong, but as soon as the railroad was built, the route through Panama began to be preferred, being much more comfortable and secure than the tortuous passage of the San Juan River, which was full of obstacles and had become, since 1855, one of the main battlefields of the war against William Walker. The Panama route declined again upon the completion of the construction of the railroad between San Francisco and the Eastern States (1869). Botanical exploration of the region entered a new era, facilitated by improved routes of communication and by the growing commercial relations between the Central American republics, Europe, and the United States. Among the foreign adventurers and the employees of the North American companies, we find numerous names which are relevant to the history of orchids in Central America.

Hans Hermann Behr (1818–1904) (FIGURE 35), German botanist and entomologist, poet and novelist, and great friend of Alexander von Humboldt, collected several specimens of orchids in the region of Chagres, Panama, around 1848, among them the type specimen of *Scaphyglottis behrrii* Rchb.f. ex Hemsl. (*Behr s.n., Chagres, Panama*). Behr visited Australia on two occasions and settled in California in 1862, where he was named curator

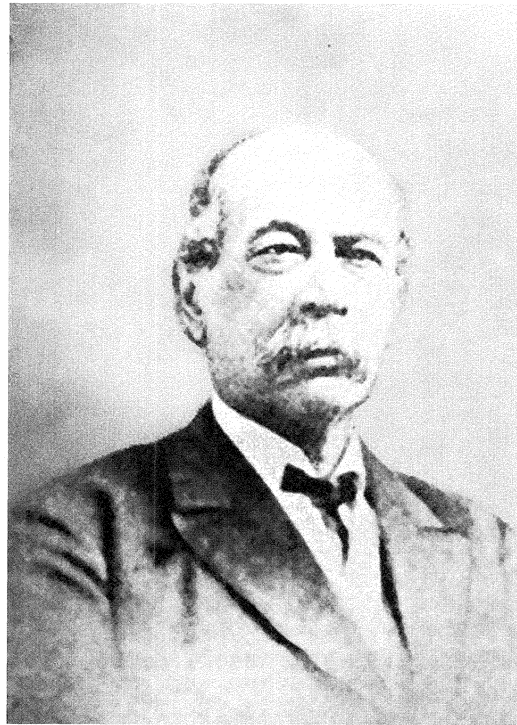


FIGURE 35. Hans Hermann Behr (1818–1904). (Courtesy of Rudolf Jenny).

of entomology at the California Academy of Science. He was responsible, through his contacts in Australia, where he had worked with the prestigious botanist Baron von Mueller, for the introduction of *eucalyptus* into California. In 1888, Behr published his *Flora of the Vicinity of San Francisco*.

The English sailor John Melmoth Dow (1827–1892) was already introduced as one of Skinner's friends. Until 1850 he had transported passengers across the isthmus by the Nicaraguan route. As captain of the steamers *Columbus* and *Golden Age*, he inaugurated the Central American service of the 'Panama Railroad Company Steamship Line,' traveling from Panama to San Francisco, along the western coast of Central America. He developed a strong friendship with Skinner and Salvin and was responsible for the safe transportation of many live orchid plants from Central America to England. Of him Bovallius writes (1977): "... since long time known for his generosity and indefatigable good will towards the researchers of the nature of this regions." In his navigation diary, on October 16, 1854, Dow wrote: "The health of the Isthmus is good, and the railroad is progressing with great rapidity . . ." Bateman honored him with the dedication of his *Cattleya dowiana*, and Andrés



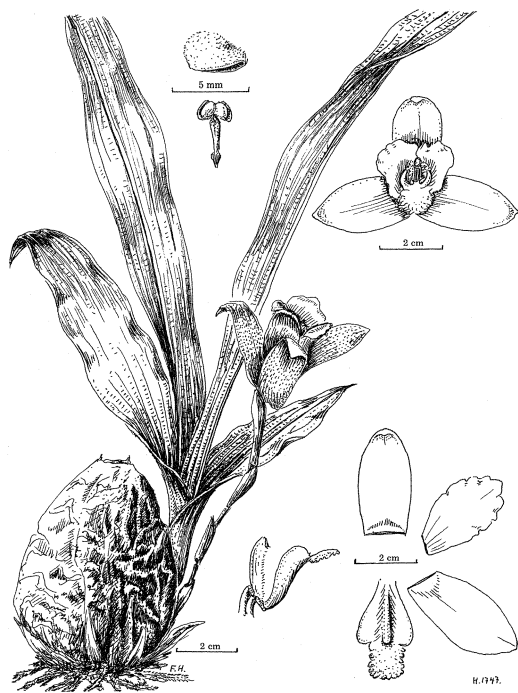


FIGURE 36. *Lycaste dowiana* Endrés & Rchb.f. (Illustration by Fritz Hamer, with permission of Hedwig Hamer).



FIGURE 37. *Selenipedium chica* Rchb.f. (Plate 2. Xenia Orchidacea I).

and Reichenbach did the same with *Lycaste dowiana* (FIGURE 36). He was also interested in marine fauna and sent important collections to the Smithsonian Institution in Washington.

Edouard Placide Duchassaing de Fontbressin (1819–1873), a French citizen, was born on the island of Guadeloupe and studied medicine in Paris. He collected in Panama between 1849 and 1851, during which years he had a sanitarium there. In his leisure time he collected plants in the neighborhood of Panama City and on Taboga Island (Standley 1928). Although he did not collect many orchids, he is famous for having discovered the largest terrestrial orchid in Central America: *Selenipedium chica* Rchb.f. (*Duchassaing s.n., Panama*) (FIGURE 37). Duchassaing reported that the fruits of *Selenipedium chica* produced a fragrant substance similar to that of vanilla. The specimens collected by Duchassaing were sent to Walpers, from whom they were purchased by Grisebach. They were the base for Grisebach's *Novitiae flora panamensis* (1854), where some new species are described. Also of great importance were Duchassaing's contributions to the investigation of marine fauna, of which he made important collections in Panama.

Moritz Wagner (1813–1887) (FIGURE 38) and

Carl Ritter von Scherzer (1821–1903), the former German and the latter Austrian, arrived at San Juan del Norte in April of 1853 and traveled to Costa Rica by way of the rivers San Juan and



FIGURE 38. Moritz Wagner (1813–1887). (Courtesy of Rudolf Jenny).

Sarapiquí. This route was the only communication between the central valley of Costa Rica and the Atlantic port of Greytown, in Nicaragua, from where the ships sailed to the United States and Europe. This route was of great importance in the history of Costa Rica's botanical exploration, until it was replaced by the route Puntarenas-Balboa-Colón, after the railroad across the isthmus of Panama was inaugurated (1855). Wagner, the more important of the two for our story, was an experienced traveler, and was influenced by the ideas of Humboldt and Darwin. He received his education at the University of Augsburg, worked later as a clerk in a trading company in Marseille and went to Paris, Erlangen, and Munich in 1834 to study natural sciences. He visited Algeria from 1836 to 1838, studied geology in Göttingen from 1838 to 1842, and explored the Caucasus and Armenia between 1842 and 1846. Trips to Italy followed from 1846 through 1849, and to Asia Minor, Persia, and Kurdistan in 1850–1851. After being in Costa Rica, Wagner and Scherzer collected in Nicaragua, Honduras, El Salvador and Guatemala, although very few species were described based on specimens they collected. The reason for this could be the loss of the botanical collections during the earthquake of El Salvador in 1854, when Wagner almost lost his life. Wagner returned to Europe and shortly thereafter, sponsored by King Maximilian II of Bavaria, returned to Panama and Ecuador. "Moritz Wagner . . . used in 1863 the same guides and porters who had been employed by Warszewicz during his travels . . ." (Heckadon-Moreno 1998). Wagner discovered the type of *Triphora wagneri* Schltr. (*M. Wagner 1778, Panama*), and several species were dedicated to him, such as *Bulbophyllum wagneri* Schltr.; *Stelis wagneri* (Schltr.) Pridgeon & M.W.Chase; and *Trichocentrum wagneri* F. Pupulin. Moritz Wagner and Carl Scherzer wrote, in 1856, *The Republic of Costa Rica in Central America*, published in German. Their descriptions of the flora, fauna and culture are still very interesting. No other foreign author has described with more sympathy the tiny state called by them "the most gentle and peaceful among the fraternity of the republics of Spanish America, a country blessed by Heaven, where nature displays in the slopes of the mountains the most wonderful variety of climates and products" (FIGURE 39). Scherzer would later write his *Travels in the Free States of Central America: Nicaragua, Honduras and San Salvador*. He gained worldwide fame through his discovery in Guatemala of the manuscript of the *Popol Vuh* by Friar Francisco Ximénez (1854), which he

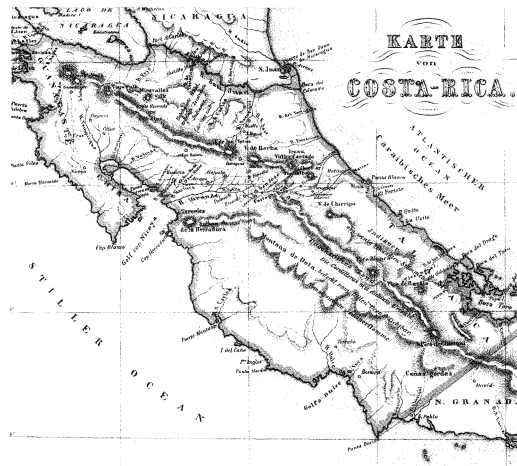


FIGURE 39. Map of Costa Rica by Moritz Wagner.

published for the first time in Vienna, in 1861.<sup>15</sup> Wagner wrote in 1863 *The Province of Chiriqui in Central America*. No orchid collections by Scherzer are known, but his discovery of *Anthurium scherzerianum* Schott (*Scherzer s.n., Guatemala*) was of great importance for European horticulture as breeding stock for numerous ornamental hybrids.

If you travel to the Mexican village of Santecomapán (Veracruz), you will find a street called 'Calle Don Benito,'<sup>16</sup> named for Benedict Roezl (1824–1885) one of the less scrupulous orchid hunters in history, who for 20 years ransacked the forests of Mexico, Central and South America with a passionate mixture of ambition and madness (FIGURE 40). A Czech by birth, he worked as a gardener in various European countries. After working for five years for Louis van Houtte, proprietor of the Royal Nurseries in Ghent, where he was in charge of the orchid section (Yearsley 1996), he came to Belgium and became head gardener for the Belgian Government's School of Agriculture. He emigrated to Mexico in 1854, and established a nursery with European fruit trees in Santecomapán. "When fighting sharpened between the Mexicans headed by President Benito Juárez and the forces of Emperor Maximilian of Habsburg, Roezl joined the ranks of Juárez and organized the defense of the city and port [of Santecomapán]. Because it was anticipated that the French

<sup>15</sup> Although Scherzer's publication came first, it was Charles Etienne Brasseur de Bourbourg who gave the manuscript the name of *Popol Vuh, Le Livre Sacré et les mythes de l'antiquité américaine*, and who made it known worldwide.

<sup>16</sup> 'Street of Mr. Benito'

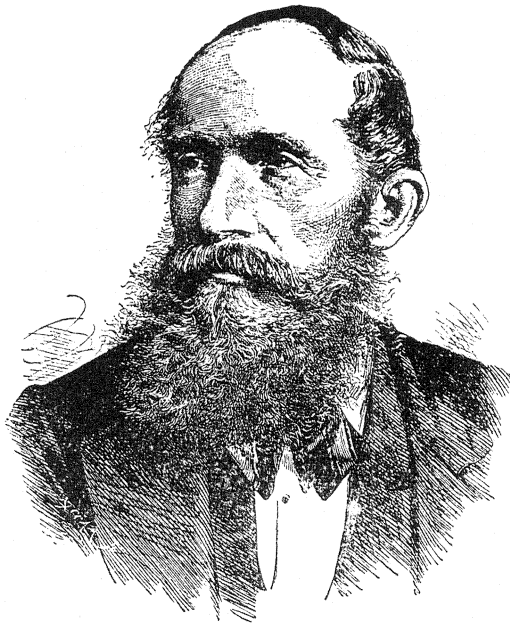


FIGURE 40. Benedict Roezl (1824–1885). (Contemporary portrait, courtesy of Rudolf Jenny).

allies of Maximilian would land their soldiers on the shores of the Gulf of Mexico . . . Juarez sent 200 men from his army to help Roezl. He proved to be a good commander. To frighten the superior forces of the French and deter them from landing, he constructed along the mall an odd defense. On carriage wheels he mounted long poles. From a distance, they looked like huge cannons. The ruse worked. The French . . . observed this 'heavily armed' port and gave up the idea of landing there" (Block 1985). An untiring traveler, Roezl went from Mexico to Cuba and then to California. In 1868 in Cuba, during the demonstration of an agricultural machine which he had invented for the production of ramie threads, he had lost his left hand, which was replaced by an iron hook. This gave him great notoriety for the rest of his life. The Cubans gave him afterwards the nickname 'El Moche' (the cripple). He established ramie plantations in Cuba and built factories for the production of threads and fabric from the fibre. Roezl was named an honorary member of the Havana Academy of Science. His portrait was hung in the auditorium of the academy, and his original ramie processing machinery was exhibited at the Havana Museum. Roezl did not return to Santecomapán and donated his gardens there to his nephews Frank and Eduard Klaboch. He collected afterwards in Panama, Colombia and Venezuela, and passed again through Panama and

Costa Rica on his way to San Francisco. After another trip to Colombia, he returned to Europe. In 1872 he came back to America, arrived in Colorado and traveled again to Mexico. He continued to Panama and Venezuela, from there to Cuba and once again to Veracruz. Then he returned to Panama and went on to Lima, Bolivia and Ecuador. One last time to Colombia and finally back to Europe. He was possibly one of the collectors who plundered and destroyed large regions, for it is believed that Roezl sent approximately one million plants to Europe, about two thirds of them orchids. As Roezl himself later admitted, he collected 3500 orchids in the Sierra Madre, 8 tons in Panama and Venezuela, and 27,000 plants in Colombia. On February 10, 1873, Roezl wrote from Caracas: "... the first thing I did was to ask for the 'Flor de Mayo'<sup>17</sup> . . . , as they call here *Cattleya mossiae* . . . The answers were negative. I was told that it was extinguished in the neighborhood of La Guaira, as a result of the massive exports to Europe . . ." He finally returned to Smichow, near Prague, where he died in 1885; he was buried in Prague. Many important people attended his funeral; even the Kaiser was there. The principal horticultural periodicals of Europe applauded the idea of an international committee to erect a monument to this indefatigable explorer. The monument erected in Prague was constructed by Professor Myslbak, a well-known sculptor in that city (Yearsley 1996) (FIGURE 41). Numerous species were described based on his collections, most of them by Reichenbach, who published in 1877 his *Orchideae Roezlianae nova seu criticae*. Among the species which he discovered and those dedicated to him, are the following: *Bletia roezlii* Rchb.f.; *Cattleya roezlii* Rchb.f.; *Dracula benedictii* (Rchb.f.) Luer; *Dracula roezlii* (Rchb.f.) Luer; *Lepanthes roezliana* Luer & R.Escobar; *Masdevallia benedictii* Rchb.f.; *Maxillaria roezlii* Rchb.f. ex Linden; *Miltoniopsis roezlii* (Rchb.f.) God. Leb. (FIGURE 42); *Paphiopedilum roezlii* (Rchb.f.) Pfitzer; *Pescatoria roezlii* Rchb.f.; *Phragmipedium roezlii* (Rchb.f.) L.A.Garay; *Pleurothallis roezlii* Rchb.f.; *Sobralia roezlii* Rchb.f.; *Telipogon benedictii* Rchb.f.; *Telipogon roezlii* Rchb.f.; and *Zygopetalum roezlii* Rchb.f. If anybody wanted to blame orchidology for being one of the causes of the destruction of nature, he would have his best argument in collectors like Roezl. We must, however, take into account that what today is considered a crime, was seen as a virtue during the nineteenth century.

<sup>17</sup> 'flower of May'



FIGURE 41. Statue of Roezl in Prague. (Photograph courtesy of Pavel Kindlmann).

### WILLIAM WALKER IN CENTRAL AMERICA

After the failure of the Central American Federation, the conservatives dominated the political life of Central America under the domination of the notorious Guatemalan dictator, Rafael Carrera. Several liberal attempts to restore the Union, articulated usually as a response to British hostilities, ended as complete failures. Carrera, enemy of the Federation, defeated all his adversaries, reestablishing the "conservative peace." But new and serious turbulences appeared, threatening the region. In 1854, the Liberal party in Nicaragua was fighting the Conservative party for power and losing. In desperation, the Liberals sought out William Walker's military assistance to help them topple the Conservatives.<sup>18</sup> In 1855, Walker responded and led

<sup>18</sup> William Walker was born in 1824 in Nashville, Tennessee. After graduating, he worked for a time as a lawyer and became finally a soldier of fortune, participating in several political adventures in Mexico and California.



FIGURE 42. *Miltonipsis roezlii* (Rchb.f.) God. Leb. (Illustration by Pilar Casasa, published with her permission).

them in the capture of the city of Granada. However, he double-crossed the Liberals, made himself president of Nicaragua in 1856, and was quickly recognized by the United States government as such: "He was a man with a very concrete plan: to conquer Nicaragua, then the rest of Central America, to build the Canal and to impose slavery" (Obregón 1993). He dreamed of a "Caribbean Federation." However, when Walker's supporters appropriated a transit company steamer owned by the American industrialist Cornelius Vanderbilt, Vanderbilt retaliated by financing the conservative forces against Walker. Walker was overthrown in a battle in 1857; and despite his attempts to recapture Nicaragua, he never again regained control. The British captured Walker in Honduras in 1860 during another takeover attempt, and the Honduran authorities promptly executed him. The constant wars and political struggles in the region were apparently not obstacles for the travelers and naturalists who continued arriving in Central America. Paraphrasing what Skinner had said years earlier, "they continued coming in spite of themselves." Orquidomania and the fascination for natural history were always stronger than any other consideration.

The Germans Carl Hoffmann (1833–1859) (FIGURE 43) and Alexander von Frantzius (1821–1877) came to Costa Rica in 1853, bearing letters of recommendation to President Juan Rafael Mora from Nees von Esenbeck, President of the German Academy, and from Alexander von



FIGURE 43. Carl Hoffmann (1833–1859). (Photograph by William Buchanan, with permission of Silvia Meléndez).

Humboldt. Frantzius was a renowned professor at the Physiological Institute in Breslau, and Hoffmann was well-known for his practical and literary works during the cholera epidemics in Berlin during 1848 and 1849. Soon they began to explore the country with the purpose of collecting specimens, mainly botanical. Hoffmann was later a physician in the Costa Rican army during the war against the troops of W. Walker, while Frantzius soon became a successful businessman and owner of a pharmacy. Hoffmann dedicated his leisure time to the collection of plants and the study of their natural distribution, and Frantzius spent his leisure in similar studies of mammals and birds. Hoffmann climbed two of Costa Rica's most important volcanoes: on May 5, 1855, the Irazú volcano near the city of Cartago, from where he described "... a magnificent orchid of the genus 'epidendron' with fire-red flowers which did not grow as a parasite on the trees but between the rocks on the hill ...," (*Epidendrum radicans* Pavón ex. Lindl.); and in August of the same year, the Barva volcano in the province of Heredia, where it caused him "extraordinary pleasure [to find] an extraor-

dinarily rare orchid with its lip pointed upward in form of a helmet ..." (*Pelexia hoffmanni* Rchb.f.). In his narrative about the excursion to the Barva, Hoffmann counts the number of orchids that he found: "Of orchids, on the Barva eight and of those four terrestrials and four parasites, and on the Irazú only two parasites." The collections of Hoffmann, who sent them to the herbarium in Berlin, were described in 1866 by Reichenbach as *ORCHIDEAE HOFFMANNIANAE*. One can find among them the types for three new species: *Pelexia hoffmanni* Rchb.f. (*C. Hoffmann s.n., Barba in Costa Rica, 1855*); *Epidendrum* (= *Prosthechea*) *ionophlebium* Rchb.f. (*C. Hoffmann s.n., Costa Rica: Curidabad, 1857*); and *Ponera albida* Rchb.f. (*C. Hoffmann s.n., Llanos del Carmen, 1857*). Among other activities, Hoffmann also published a bilingual newspaper, called *Costa Rica Deutsche Zeitung*. He dreamed of writing a book with the title *Flora and Fauna of Costa Rica*, but he had to abort this idea because of the war and his illness (Hilje 2006). After the war against Walker, he retired to Puntarenas, where he died in 1859. His mortal remains were brought to San José in 1929, where they were buried with military honors. Von Frantzius returned to Germany in 1865, but he left a profound impression in Costa Rica. His establishment, managed afterwards by José Cástulo Zeledón, became the favorite center for reunion of foreign and national naturalists. Some of them formed a group nicknamed "the drugstore gang," which had extraordinary importance in the development of natural sciences in Costa Rica during the last years of the nineteenth and the first decades of the twentieth century.

The gardener Julian Carmiol (1807–1885), in the company of his brothers Franksius and Robert, came to Costa Rica with Hoffmann and von Frantzius. He would stay in Costa Rica for the rest of his life. A naturalist by profession, he felt especially attracted to horticulture and ornamental plants, as well as to wildlife and ornithology. Many of the Costa Rican plants which were adopted by European floriculturists owe their introduction to this humble German gardener (León 2002). Carmiol also collected herbarium material and birds, which he sent to American and European institutions. Among his collections of orchids we find *Lycaste xytriophora* Linden & Rchb.f. and *Epidendrum campylostali* Rchb.f. Helmuth Polakowsky (1876) tells us about another orchid, *Vanilla* sp., in 1876: "I have never found vanilla in the market and only in the house of a German gardener [J. Carmiol] did I see by chance fresh pods which his people had brought him from the forests behind Angostura." Carmiol was honored in the naming of

*Phaedranassa carmioli* Baker of the Amaryllidaceae and *Crotalaria carmioli* Polakows. of the Leguminosae.

The Moravian Evangelical Church of Herrenhut in Saxony, Germany (known as the "Bruedergemeinde," or "Community of the Brothers") began to send missionaries to the Caribbean in the early years of the eighteenth century, founding an establishment in Suriname (Dutch Guyana) in 1735. These missionaries traveled along the Antilles and the Central American coast and much later (1922), founded a mission in the Mosquito Coast. Heinrich Rudolf Wulschlaegel (1805–1864) came to the mission of the "Bruedergemeinde" in Suriname in 1849. To communicate with the natives, the missionaries had to learn their language, a mixture of English, Dutch, Portuguese and African elements, known today as "Sranan." Wulschlaegel created a "Negro-English Grammar" and a "German-Negro English Dictionary," which were published in Germany in 1856 and 1865, respectively. Wulschlaegel traveled to Brazil, the Antilles and the Mosquito coast. An amateur botanist, he made some interesting collections. In Jamaica he discovered the type of *Lepanthes wulschlaegelii* Fawc. & Rendle (*Wulschlaegel, s.n.*), and in Suriname *Macroclinium wulschlaegelianum* (Focke) Dodson (*Wulschlaegel, s.n.*). On the Mosquito Coast he collected four species of orchids (all on the same day, January 5, 1855, and in the same locality: 'Pearlkey Lagoon'), which were described by Reichenbach (1866) in his *ORCHIDEAE WULSCHLÄGELIANAE*, among which is the type *Dichaea trulla* Rchb.f. (*Wulschlaegel s.n., 'Pearlkey Lagoon auf Palmen'*).

Charles Wright (1811–1865) had taken part as a botanist in the expedition which had surveyed the Mexican-American borders after the war of 1846–1848. In 1853, he joined the "United States North Pacific Exploring Expedition," also known as the "Ringgold and Rodgers Expedition" for its captains. This expedition traveled around the world, stopping in such places as Australia, Hong Kong, Japan, and the islands of the Bering Straits, before arriving in San Francisco. Wright spent the winter in California and then asked to leave the expedition, which was scheduled to continue south around Cape Horn and then to New York. After leaving the expedition, Wright took a steamer to Nicaragua, arrived at San Juan del Sur mid-February, 1856, then went to Virgin Bay, which was his base for the next two months. He made excursions to the Pacific coast and to an island in Lake Nicaragua. While in Nicaragua, Wright also discovered another hazard of fieldwork: political unrest. Wright had to be careful in the content of his

letters to Asa Gray, as negative comments about the government would be censored. Wright also suspected that more innocent letters were also seized from the mail. One letter which did get through to Gray describes the trouble that Wright had in trying to leave Nicaragua. Rumors were flying that outward bound transport would soon be halted, so Wright hastily tried to arrange his journey to New York. For a time it seemed that no amount of money could either secure a berth or charter a ship, but eventually Wright was able to arrange transport back to the United States. Among Wright's collections in Nicaragua we find some orchids, such as *Epidendrum imatophyllum* Lindl.; *Pleurothallis cardiothallis* Rchb.f.; and *Brassavola nodosa* Lindl.; and also new types: *Camaridium wrightii* Schltr. (*Wright s.n., Nicaragua*); *Ornithidium paleatum* Rchb.f. (*Wright s.n., Nicaragua*); and *Stelis parvula* Lindl. (*Wright 9, Nicaragua*). After spending some time in Wethersfield and Cambridge, Wright went on the first of a series of travels to Cuba between 1856 and 1867. His work was described by the botanist August Grisebach in his *Plantae Wrightianae e Cuba Orientali*, published in two parts in 1860 and 1862.

"The renowned gardens of Herrenhausen, in the vicinity of Hannover, Germany, were created in 1866 by the Duke Johann Friedrich von Calenberg. It was there that the famous Wendland dynasty was born, a family of gardeners and botanists of enormous prestige. The Wendland dynasty began with Johann Christoph Wendland (Wendland I) in 1778, continued with his son Heinrich Wendland (Wendland II) and ended with his grandson Hermann Wendland (1825–1903) (FIGURE 44). It was this Wendland III who departed from Germany in 1856 on an extended voyage through Central America and who returned to Herrenhausen with a collection of orchids which contained 134 different species. A special greenhouse, called 'Costa Rica-Haus' was inaugurated exclusively for this collection" (Jenny 1995). It is curious to think of Wendland collecting orchids in this country at the same time that Juan Rafael Mora led the Costa Ricans in the fight against the filibusters. The idea of traveling to Central America was born during a visit by George U. Skinner to Herrenhausen. It was then that Wendland expressed his wish to travel to the Tropics. A few weeks later, Skinner wrote from London to the Director of Herrenhausen, recommending that Wendland be allowed to travel to Central America, and inviting him to Guatemala. The journey was authorized, and Wendland traveled from Hannover to Southampton, across the Atlantic to Belize and finally to Guatemala, where he stayed for several weeks. In the first weeks of 1857 he traveled to





FIGURE 44. Hermann Wendland (1825–1903). (Photograph courtesy of Rudolf Jenny).

El Salvador, where he took a ship to Puntarenas (Costa Rica), arriving there in March. He soon made the acquaintance of Frantzius and Hoffmann, who were helpful in organizing Wendland's excursions to the mountains surrounding San José. In August 1857 he started on his way home, traveling over the Sarapiquí and the San Juan rivers to San Juan del Norte (Nicaragua), where he found a ship sailing to Southampton, and arrived back in Hannover in September. Most of the new orchid species discovered by Wendland were described by Reichenbach (1866) in his *ORCHIDEAE WENDLANDIANAE*, among them the following: *Arpophyllum medium* Rchb.f. (Wendland 190, Guatemala); *Cyclopogon prasophyllum* (Rchb.f.) Schltr. (Wendland 297, Guatemala); *Epidendrum myodes* Rchb.f. (Wendland 111, Costa Rica); *Epidendrum nitens* Rchb.f. (Wendland 324, Guatemala); *Epidendrum nubium* Rchb.f. (Wendland 33, Guatemala); *Erythroides vesicifera* (Rchb.f.) Ames (Wendland s.n., Costa Rica); *Malaxis wendlandii* (Rchb.f.) L.O.Wms. (Wendland s.n., Costa Rica); *Myrmecophila wendlandii* (Rchb.f.) G.C.Kennedy (Wendland s.n., Guate-

mala) (FIGURE 45); *Pelexia gutturosa* (Rchb.f.) Garay (Wendland s.n., El Salvador); *Pleurothallis fuegii* Rchb.f. (Wendland s.n., Guatemala); *Sarcoglottis sceptrodes* (Rchb.f.) Schltr. (Wendland 388, Guatemala); and *Stelis leucopogon* Rchb.f. (Wendland 895, Costa Rica). Wendland collected in Guatemala, El Salvador and Costa Rica. There are no known collections by him from Nicaragua, a country he probably avoided due to the war against Walker. Wendland's interest in orchids, although responsible for very important discoveries, was secondary. His main field of knowledge were the Palmaeeae, a family in which he was considered the leading world expert of his time. He made important contributions to Oersted during the great Danish scientist's work on Central America. Oersted wrote: "I must add that M. H. Wendland, to whom science owes so much for his beautiful investigations of the American palms, has also gathered a considerable herbarium in Central America, part of which he has been kind enough to put at my disposal for this work . . ." (Oersted 1863).

Born at Park Hatch, Godalming, Frederick Du Cane Godman (1834–1919) was a keen student of natural history from his earliest days. At Cambridge he became an intimate friend of Al-

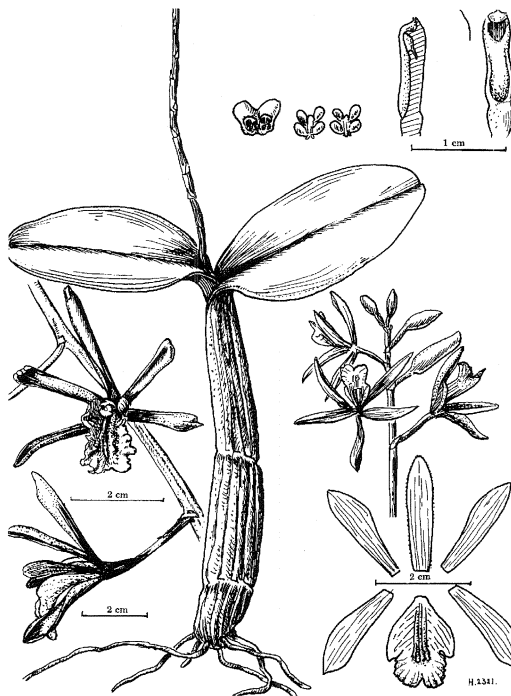


FIGURE 45. *Myrmecophila wendlandii* (Rchb.f.) G.C.Kennedy. (Illustration by Fritz Hamer, with permission of Hedwig Hamer).



fred and Edward Newton and of Osbert Salvin (1835–1898), all enthusiastic students of bird life. Godman and his friend Osbert Salvin were enthusiastic followers of Darwin, and together they decided to produce a work which would review every form of life in a specific part of the world: Central America. Thus began in 1879 the lifework of these two friends, a project that would take 36 years to complete: the 63 volume *Biologia Centrali-Americana*. The two friends secured experts to write about their own areas of special knowledge, themselves acting as editors and presenting the sections on birds and butterflies. They had traveled to Guatemala many times between 1857 and 1874, preparing zoological but also botanical collections. "... [T]here are two separate collections of flowering plants in the Kew Herbarium—one, consisting of about 250 species, dated 1861, and the other, consisting of about 350 species, dated 1873–1874, and ascribed to Mr. Salvin alone" (Hemsl. 1884). Salvin, whose wife Caroline was a magnificent botanical illustrator, lived in Guatemala and appreciated its natural beauties; but he never could accept the customs of his adoptive country. In a letter to his father in January, 1858, he wrote: "... George Skinner and I went to Ocatenango ... to collect orchids ... the country is very full of resources ... The only thing against it is the miserable race of Spaniards, but this evil is by degree being diminished by the increase in foreigners" (Hamilton 1993). Among his collections is the type of *Ornithocephalus salvinii* Rchb.f. ex Hemsl. (*Salvin s.n.*, *Barranca Honda, Guatemala*) and many specimens of the genus *Lepanthes*.

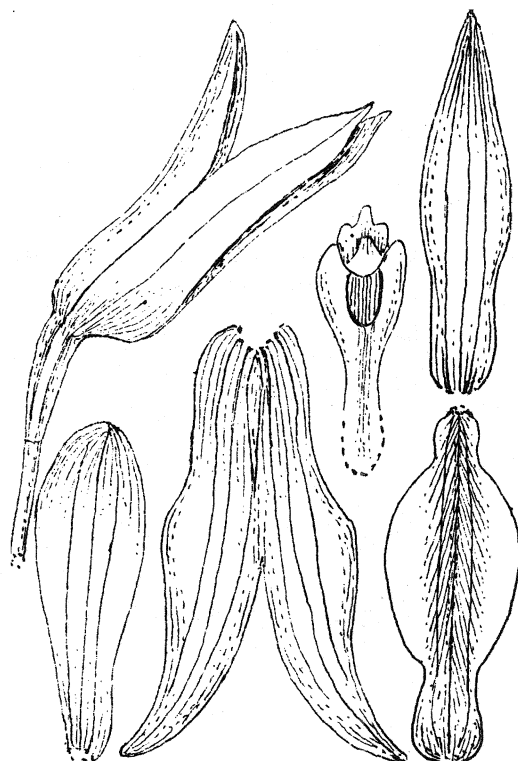
The German Carl Kramer had been sent to Japan in 1857 and arrived in Costa Rica in 1866, via Panama, to search for the *Cattleya dowiana* which had become Skinner's obsession. Kramer discovered the type of *Ticoglossum krameri* (Rchb.f.) R.Rodríguez ex Halbinger, but this seems to have been his only success in Central America. In the words of Veitch, Kramer proved "... unsuitable for the work" (Veitch 1906). However, *Leptorchis krameri* Kuntze and *Liparis krameri* Franch. & Sav. were dedicated to him. Later he lived for many years in Manaus, Brazil, where he was in charge of the botanical training of young Erich Bunge, who would become famous for his collections in Brazil, Venezuela, and Colombia.

The physician Carl Gustav Bernoulli (1834–1878) was born in Basel, Switzerland, into a family whose ancestors had been famous physicists and mathematicians (FIGURE 46). After graduating in medicine in 1857, and strongly influenced by the ideas of Alexander von Humboldt, he traveled to Guatemala in 1858. He



FIGURE 46. Carl Gustav Bernoulli (1834–1878). (Photograph courtesy of Rudolf Jenny).

lived most of the time in Retalhuleu, where he had a coffee plantation. Anticlerical by nature, he blamed the church for the backwardness of Guatemala in those days. In 1868 he spent a short time in Europe. During this time he visited the herbariums of the botanical gardens of Berlin, Hamburg, Amsterdam, London and Paris, motivated by his desire to write a flora of Guatemala (Meyer-Holdampf 1997). In 1872 he sent 5 boxes with his botanical collections and other objects of natural history to Europe, intended among others for Hooker, Kuhn, De Candolle and Reichenbach. After meeting Baron von Tuerckheim, he started on his last excursion in 1877, in the company of the German botanist O. R. Cario. He visited the ruins of Palenque and took part in the excavation of the temples of Tikal. Bernoulli found the temples completely covered by vegetation. Impressed by the quality of the wooden lintels of the doors of Temple IV, he took them out "with permission of the government" (so says the Museum of Cultures, in Basel, where the doors arrived in 1878, a few months after his death). An important number of new species of Orchidaceae were found among Bernoulli's and Cario's collections. They were described chiefly by Schlechter, including the following: *Deiregyne nelsonii* (Greenm.) Burns-Bal. (Bernoulli & Cario 644, *Guatemala*); *Ery-*



*Nr. 114. Pleurothallis Bernoullii Schltr.*

FIGURE 47. *Pleurothallis bernoullii* Schltr. (Drawing by Rudolf Schlechter).

*throides lunifera* (Schltr.) Ames (Bernoulli & Cario 669, Guatemala); *Habenaria tetranema* Schltr. (Bernoulli 325, Guatemala); *Lemboglossum majale* (Rchb.f.) Halb. (Bernoulli 338, Central America); *Oncidium bernoullianum* Kraenzl. (Bernoulli 339, Guatemala); *Ornithocephalus tripterus* Schltr. (Bernoulli & Cario 667, Guatemala); *Pleurothallis bernoullii* Schltr. (Bernoulli & Cario 499, Guatemala) (FIGURE 47); *Ponthieva pulchella* Schltr. (Bernoulli & Cario 487, Guatemala); *Stelis cleistogama* Schltr. (Bernoulli & Cario 344, Guatemala); *Stelis ovatilabia* Schltr. (Bernoulli & Cario s.n., Guatemala); *Stelis oxypetala* Schltr. (Bernoulli & Cario 624, Guatemala); and *Stelis tenuissima* Schltr. (Bernoulli & Cario 590, Guatemala). He maintained close relationships with the leading American botanists of his time. In one of his letters to Joseph Henry, Director of the Smithsonian Institution, he claimed: "I possess valuable collections of this country . . . so that I can offer to American botanists collections that may be interesting to them . . ." Asa Gray, Director of the Botanical Garden of Harvard University, mentioned in February, 1878: "Dr. Bernoulli is

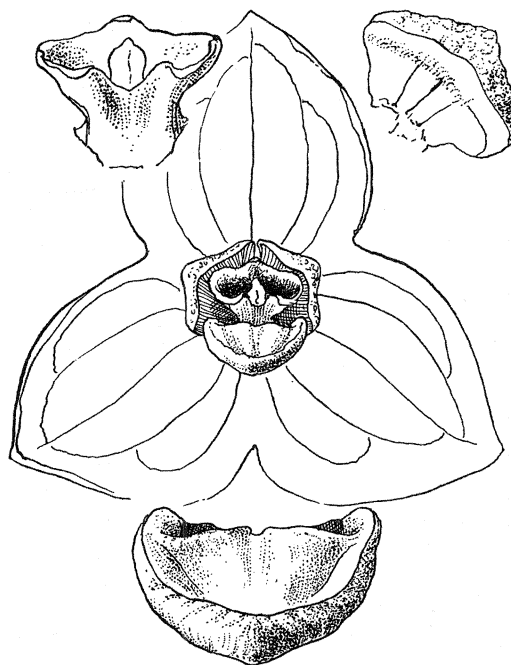


FIGURE 48. *Stelis carioi* Schltr. (Illustration by Blanche Ames, courtesy of the Oakes Ames Orchid Herbarium, Harvard University).

right saying that the Botany of Guatemala is very little known, and that his collection will be full of interest" (Meyer-Holdampf 1997). Bernoulli died on May 18, 1878, in San Francisco, during his return travel to Switzerland, from a tropical illness he had contracted in the region of Petén. Years later, in 1897, the *Bryologia guatemalensis ex collectionibus Domin. Bernoulli & Cario* (1866–1878) was published in the *Bulletin de l'Herbier Boissier*, (Müller 1897) based on the herbarium of Bernoulli and Cario. Schlechter dedicated to Cario *Pleurothallis carioi* Schltr. (Bernoulli & Cario 496) and *Stelis carioi* Schltr. (Bernoulli & Cario s.n.) (FIGURE 48).

Sutton Hayes (unk.–1863), was a doctor and naturalist with the El Paso and Fort Yuma "Wagon Road Expedition" in 1857–1858. Born in Columbia County, New York, he graduated in medicine in New York City. He studied botany for several years while living in Paris, France. After leaving the Wagon Road Expedition, he developed tuberculosis and went to what is now Colón in Panama, where he collected extensively until his death in 1863. When he stopped in Puntarenas on his way to Panama in 1860, Hayes became perhaps the first North American to botanize in Costa Rica (Grayum et al. 2004). Among his Panamanian specimens we find *Brassavola nodosa* Lindl., *Trichopilia* sp.; *Lock-*

*hartia pallida* Rchb.f. (Hayes 106); *Cyclopogon prasophyllum* Schltr. (Hayes 138); *Sobralia fenzliana* Rchb.f. (Hayes 493); and the type of *Campylocentrum panamense* Ames (Hayes 1389). In 1860 he spent several months in El Salvador and Guatemala, where he collected *Sobralia macrantha* Lindl. (Hayes s.n., Guatemala); *Spiranthes aurantiaca* (Llave & Lex.) Hemsl. (Hayes s.n., Guatemala); and *Spiranthes rosulata* (W. Baxt.) Lindl. (Hayes s.n., Guatemala). Hayes contributed in great measure to the completion of the list of Panamanian plants which had been published some years earlier by Seemann.

### THE MEXICAN EMPIRE OF MAXIMILIAN OF HAPSBURG

In 1859, a group of Mexican conservatives approached Ferdinand Maximilian Joseph, Archduke of Austria, Prince of Hungary and Bohemia (1832–1867), offering him the throne of Mexico. Although he initially refused, the French occupation of the Mexican capital and the pressures of Napoleon III convinced him, and he was crowned as the Emperor of Mexico in 1864. A passionate lover of nature, he organized during his short reign a scientific commission, which was sent out to explore the flora and fauna of Mexico. Prominent among the members of this commission was Eugene Bourgeau (1813–1877), who had previously collected in Spain, North Africa and the Canary Islands. He prepared extensive collections of plants which are today at the Natural History Museum of Paris. Among his specimens are numerous species of Orchidaceae, some of which were new to science: *Bletia greenmaniana* L.O.Wms. (Bourgeau 2812); *Epidendrum bourgeavii* Schltr. (Bourgeau 3104); *Malaxis lepidota* (Finet) Ames (Bourgeau 3008); and *Pleurothallis bourgeaui* Kraenzl. (Bourgeau 2469).

Ludwig Hahn (–1873) lived in Mexico beginning in 1855 and years later joined Maximilian's scientific expedition. Hahn was a botanist, and his mission was to study Mexican plants, collect them, and send them to Europe. This he did, but he fell in love with Mexico and never went back to Germany. He changed his name from Ludwig to Luis and became a Mexican citizen. We believe he died in Mexico in 1873. Luis Hahn was not only a botanist but an accomplished musician. He played the piano, sang and composed. He wrote a series of pieces for piano which he called *Recuerdos de México*.<sup>19</sup> Among his collections are several orchids, such as *Epidendrum*

*equitans* Lindl.; *Epidendrum rigidum* Jacq.; and *Habenaria lactiflora* A.Rich. & Gal.

After several years of fighting against French occupation, the troops of Benito Juárez finally captured Maximilian in Querétaro. On June 19, 1867, he died in front of a firing squad, beside his generals Miramón and Mejía.

### THE SPANISH SCIENTIFIC COMMISSION TO THE PACIFIC 1863–1866

The Scientific Commission to the Pacific was the most important scientific enterprise of 19th century Spain. In the spring of 1862, the Ministry of Development decided to add a scientific team to a naval squadron which the government of General O'Donnell sent to America as part of its Pan-Hispanic politics. The group of naturalist travelers was formed by six professors of the Natural Science Museum of Madrid and two assistants: a taxidermist and an illustrator/photographer. Their mission was to assemble scientific collections which would enrich the Spanish museums and help develop the program of acclimatization of exotic plants and animals useful to the Spanish economy. The expedition visited Brazil, Uruguay, and Chile before turning northwards towards Ecuador, Central America, and California, returning to Spain at the end of 1865. Only a small part of the collections of the Commission have been studied, and we cannot confirm the collection of orchid specimens by its members. The herbarium of Juan Isern y Batlló (1821–1866), the Commission's botanist, was studied in part by José Cuatrecasas and awaits further research at the Royal Botanical Garden in Madrid.

### LINDLEY AND REICHENBACH: CHANGING OF THE GUARD

John Lindley, the most important orchidologist in the first half of the nineteenth century, described the majority of orchids which were discovered in Central America. His close relation with the Botanical Gardens at Kew during a time when British power dominated the five continents, brought into his hands, for identification, new species from all over the world. However, during the first years of the second half of the century, a new star arose: Heinrich Gustav Reichenbach (1824–1889) (FIGURE 49). In 1852 he had published his dissertation on the structure of the pollen masses in orchids, and in 1854 had started the publication of his *Xenia Orchidaceae*, which he completed in 1883. Son of the famous botanist Heinrich Gottlieb Reichenbach, Reichenbach *filius* soon began to be rec-

<sup>19</sup> 'Remembrances of Mexico'



FIGURE 49. Heinrich Gustav Reichenbach (1824–1889) (At age 38, courtesy of the Hunt Institute for Botanical Documentation).

ognized as Lindley's protégé, being first his assistant and later his competitor in the identification of new species. Nonetheless, they were bound by a close friendship which lasted until Lindley's death. Reichenbach's evolution as an orchid expert is evident if we observe chronologically the collections which were studied between 1830 and 1860.<sup>20</sup> The majority of the Central American specimens cultivated by Loddiges, or collected by Cuming, Skinner, Hartweg, Hinds, Sinclair and Barclay, were identified by Lindley. The descriptions of the new species discovered by Schiede, Deppe and Linden are divided between Lindley and Reichenbach. However, beginning with Seemann, and continuing

<sup>20</sup> For chronological comparisons one must take into account that study and identification of species often took place two or three years after the date of collection, due to the length of the expeditions and the difficult conditions of travel.

with Friedrichsthal, Warscewicz, Liebmann, Oersted, Behr, Duchassaing, Roezl, Hoffmann and Wendland, it is almost exclusively Reichenbach who studied and identified the Central American collections. Many of the new species were described by Reichenbach in his *Contributions to the Orchidology of Central America*, published in Hamburg in 1866. When Lindley died in 1865, Reichenbach became the virtual dictator of orchidology, although he was not immune from criticism. The botanist George Bentham criticized his determinations for ignoring structural characteristics other than those of the flower; and an obituary in the *Proceedings of the Linnean Society* later referred to the "many puzzles in his descriptions, which of late years had assumed an esoteric character" (Elliott 1994). When Reichenbach died in 1889, he left his enormous herbarium, including all the material which had been contributed by other botanists during his lifetime, to the Imperial Museum of Vienna. It contained more than 700,000 specimens, of which some 52,000 were orchids. The sheets usually showed very rude but very characteristic drawings. Reichenbach's will read textually: "My herbarium and my botanical library, my instruments, collections of seeds, & accue to the Imperial Hof Museum in Vienna, under the condition that the preserved Orchids and drawings of Orchids shall not be exhibited before twenty-five years from the date of my death have elapsed . . ." The immediate stimulus for the making of the will was no doubt the incorporation, in 1879, of Richard A. Rolfe to the scientific staff of Kew, who within a few years had become responsible for the orchids at the herbarium. Once Kew realized that it had a competent in-house specialist, it ceased to send its orchids to Reichenbach for identification. "Seldom has anyone's reputation suffered a reversal so quickly" (Elliott 1994). The loss of all of Reichenbach's material was a terrible blow for science. To aggravate this, the First World War began in 1914, when the twenty-five years stipulated in the will had just elapsed. This delayed until the twenties the study of the materials which the controversial German botanist had accumulated during his life. Oakes Ames had harsh words for Reichenbach: "Reichenbach, as I see the situation now, rose to eminence as an orchidologist simply because of unexampled opportunity. When I review the sensations stimulated by his famous herbarium preserved at Vienna, I find them far from flattering. The lack of data, the indecipherable handwriting, the scrappy specimens ( . . . ), and the odd bits of paper that bear meager and often inadequate information, give rise to disgust. . . . If we compare Reichenbach with Lindley, the former suffers



FIGURE 50. *Masdevallia reichenbachiana* Endrés ex Rchb.f. (Illustration by Pilar Casasa, published with her permission).

prodigiously! . . . Yet, the Reichenbach herbarium has been an almost insuperable obstacle to the progress of orchidology for over twenty years, because its founder violated the very spirit of science" (in a letter to Charles H. Lankester, Oct. 18, 1922). Respected as one of the greatest orchidologists of the nineteenth century and hated for being responsible for 25 years of an obscurantist interregnum, Reichenbach will nevertheless always have a preeminent place in the history of the orchids of Central America. A new genus, *Reichenbachanthus* Barb. Rodr., and a great number of species were dedicated to Reichenbach: *Barbosella reichenbachiana* (Endrés ex Rchb.f.) Schltr.; *Chondrorhyncha reichenbachiana* Schltr.; *Elleanthus reichenbachianus* Garay, *Epidendrum reichenbachianum* Schltr.; *Habenaria reichenbachiana* Barb. Rodr.; *Laelia reichenbachiana* Wendl. & Kraenzl.; *Lycaste reichenbachii* Gireoud ex Rchb.f.; *Malaxis reichenbachiana* (Schltr.) L.O. Williams; *Masdevallia reichenbachiana* Endrés ex Rchb.f. (FIGURE 50); *Odontoglossum reichenbachianum* F.C. Lehm.; *Pleurothallis reichenbachiana* Schltr.; *Sievelkingia reichenbachiana* Rolfe; and *Stanhopea reichenbachiana* Roezl ex Rchb.f.

#### THE MYSTERIOUS 'SEÑOR' ENDRÉS

Almost nothing is known about the origins and life of A.R. Endrés (–1875), "... one of those collectors who cared more for science than for sovereigns" (H.G. Reichenbach 1883). "His last name is Spanish, yet he wrote his notes in English. He was referred to as a 'half-caste'

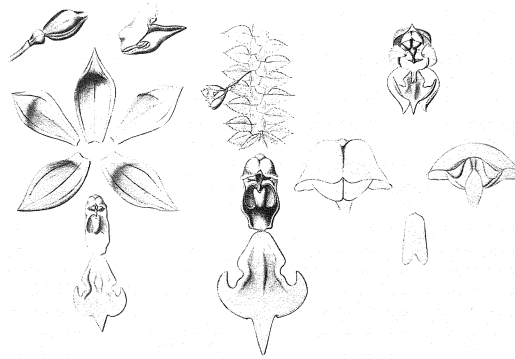


FIGURE 51. *Dichaea squarrosa* Lindl. (Drawing by A.R. Endrés, courtesy of Franco Pupulin).

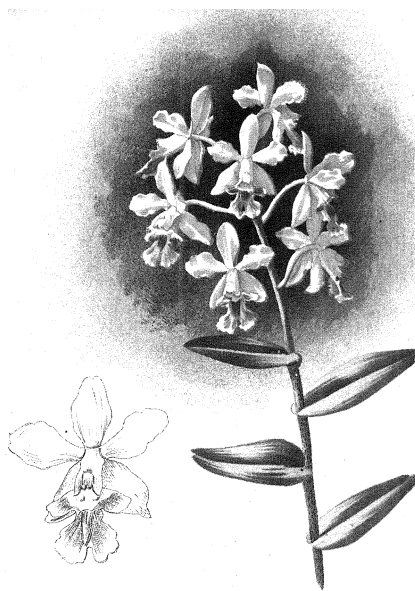
(Veitch 1906), a label that may indicate parentage of a North American or European and a Latin American" (Atwood 1999). Luis D. Gómez (pers. comm.) tells us that Endrés was Austrian and that his last name is more or less common in Austria and Switzerland. The quality and precision of the botanical descriptions and illustrations (most of them in pencil) which were attached to his herbarium specimens is astounding, which leads to the assumption that he had a solid academic training, which he probably received in England (FIGURE 51). His use of the English language, precise and cultivated, points in the same direction. He came to Central America employed by George U. Skinner to collect orchids in Guatemala and Costa Rica for James Bateman (Anonymous 1913). It is possible that Skinner hired him after the disappointment he suffered with Enrique Arce, a Guatemalan collector who had not met Skinner's expectations in the search for *Cattleya dowiana*. Endrés came to Costa Rica for the first time in the early 1860s, and settled temporarily along the San Carlos and Sarapiquí rivers with English and German colonists. There he worked at least part-time with a Mr. Koschny to establish a plantation of native rubber and nutmeg. He seems to have returned to Europe around 1865. A series of articles in the *Gardeners' Chronicle* signed "A.R.E." appear to have been written by Endrés from Berlin. (Manning pers. comm.) There is evidence that while in Berlin in 1865, he and Reichenbach became closely acquainted. Reichenbach (1875) later described "a few delightful days, full of Orchid talk and chat, with Messrs. Roezl and Endres at Hamburg." "A.R.E." translated several articles from English for German gardening magazines, which leads us to think that Endrés was fluent in several languages. In 1866 or 1867, according to the dates of his early collections which are preserved at Vienna, our



FIGURE 52. San José in Endrés' time. (19th century postcard, from *Imágenes y fotografías* Vol. I, courtesy of Alvaro Castro).

mysterious collector was back in Costa Rica. According to Manning (pers. comm.), his first known collection from this country was *Masdevallia erinacea* Rchb.f. While Endrés was in Costa Rica, "Gottlieb Zahn traveled in Central America, 1869–1870. The main object of his journey was the introduction of the rare *Miltonia endresii* (= *Milioniopsis warscewiczii* (Rchb.f.) Garay & Dunsterville), discovered by Warscewicz about 1849, but which had previously resisted all attempts at introduction. Zahn was equally unsuccessful with this plant. In 1869 he was proceeding to Costa Rica, when he perished by drowning" (Veitch 1906). We remember him in a bromeliad, *Guzmania zahnii* (Hook.f.) Mez. Endrés, hired in 1871 by Veitch to replace Zahn, collected *Miltonia endresii*, *Catleya dowiana*, *Masdevallia reichenbachiana* and others, then considered of little horticultural value. For some reason, Veitch did not consider Endrés a successful collector. "The mission, which terminated in April 1873, was expensive and scarcely a success" (Veitch 1906). Endrés lived in San José (FIGURE 52) and collected in all accessible regions of Costa Rica, from Ojo de Agua to the mountains of Talamanca, the region of Dota, and the hills of Candelaria. Lankester commented on his collections in the mountains around Vara Blanca: "Endrés worked it, but probably mainly for horticultural stuff" (in a letter to Ames, July, 1923). He sent a great amount of materials to Reichenbach. "The rich collections prepared by Endrés have remained unstudied and wait for their identification in Reichenbach's herbarium" (Schlechter 1918). During these years, Endrés collected in the company of George Downton (unk.–1895), a British citizen who came to Central America in 1871, also hired by Veitch. Downton traveled to England escorting the first

of Endrés' shipments. After traveling to Chile in October of 1871, he terminated his contract in 1873 and settled in Central America, where he joined a firm of coffee planters and died in 1895. According to the labels of herbarium specimens preserved in Vienna, Endrés also collected together with the Swiss Richard Pfau. Reichenbach (1875) again tantalizes us with the possibility that Endrés teamed up with another collector in this comment: "*Epidendra* . . . The oldest species is *E. exasperatum*, discovered by Wendland fils, and then collected by Messrs. Carmiol and Endres." He meant obviously Julián Carmiol, of whom we talked previously, and who lived in Costa Rica during Endrés' time. Among the many new species discovered by Endrés we find the types of *Barbosella prorepens* (Rchb.f.) Schltr. (Endrés 271, Costa Rica); *Pleurothallis endotrachys* Rchb.f. (Endrés s.n., Costa Rica); and *Stelis endresii* Rchb.f. (Endrés W 18468, Costa Rica). The following species were dedicated to him: *Anathallis endresii* (Luer) Pridgeon & M.W.Chase; *Chondroscaphe endresii* (Schltr.) Dressler; *Habenaria endresiana* Schltr.; *Kefersteinia endresii* Pupulin; *Lepanthes endresii* Luer; *Maxillaria endresii* Rchb.f.; *Mesospinidium endresii* (Kraenzl.) Garay; *Miltonia endresii* Nichols.; *Epidendrum endresii* Rchb.f. (FIGURE 53); *Telipogon endresianum* Kraenzl.; and *Zootrophion endresianum* (Kraenzl.) Luer.



A. Goossens Pin. 5.

Lith. J. Goffin. Fils

EPIDENDRUM ENDRESII, Rchb.f.

FIGURE 53. *Epidendrum endresii* Rchb.f. (Illustration by A. Goossens, Dictionnaire Iconographique de Orchidées).



Rudolf Schlechter dedicated to him the genus *Endresiella*, today a synonym of *Trevoria*. From at least one of his specimens, we know that he collected also in Panama: a specimen of *Rodriguezia leochilina* Rchb.f. (*Goniochilus leochilinus* (Rchb.f.) M.W.Chase) in Vienna bears a label in Reichenbach's handwriting which says: "Rodriguezia?—Panama—Endres." Besides collecting orchids, Endrés at some point collected birds. A collection was received in 1867 at the Smithsonian Institution of which the American ornithologist G.N. Lawrence wrote in 1882: "a small but important collection of hummingbirds has been received this summer, collected by A.R. Endrés in Costa Rica." Another mystery is a series of specimens allegedly collected by Endrés in Peru and Brazil. There is no information about travels by Endrés to these countries, but in the collection of Orchidaceae at the Natural History Museum in London we find 19 specimens apparently collected by Endrés in Peru and one in Brazil. In the database of the herbaria of Harvard University Endrés is also mentioned as a collector in Costa Rica and Peru. Did Endrés visit these countries, or did he receive plants from there (from other collectors) while he was in Costa Rica? To understand the enigma of A.R. Endrés in the history of the orchids of Central America, his life must be researched, starting with all the material which is kept at Vienna. This will help in understanding the relations between Endrés and Reichenbach, probably not always fortunate if we consider the difficult character and egotism of the great German orchidologist. Curiously, during his life Reichenbach ignored many of the specimens which he received from Endrés, which in many cases proved to be new genera or species. Perhaps it was merely Reichenbach's deference to Endrés, who, according to Luer (1995), "judging from the numerous notes indicating figures, intended pages and volumes, Endrés was apparently preparing a publication." The material kept at Vienna was studied later, among others, by Ames,<sup>21</sup> Schlechter, Kränzlin, Garay, Luer, Dressler, Dodson and Pupulin. Endrés collected in Costa Rica until 1875. This same year he traveled to Colombia, where he was murdered in Riohacha (Swinson 1970). Reichenbach never kept the promise (FIGURE 54) expressed in the *Gardener's Chronicle* obituary. The life and death of A.R. Endrés remain among the best guarded secrets in the history of Central American orchids.

<sup>21</sup> It is told that Ames was waiting impatiently on the stairs to the Imperial Museum in Vienna the day that the boxes containing Reichenbach's herbarium were opened (G. Romero pers. comm.).

## Obituary.

WE greatly regret to hear of the death of the excellent botanical collector, M. ENDRES. We are promised an account of his career from Prof. Reichenbach,

FIGURE 54. Endrés' obituary in the *Gardeners' Chronicle*.

## CONCLUSION

Part III of the *History of Orchids in Central America* is in preparation and will cover the period 1870 to the end of the 1920s.

## ACKNOWLEDGMENTS

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